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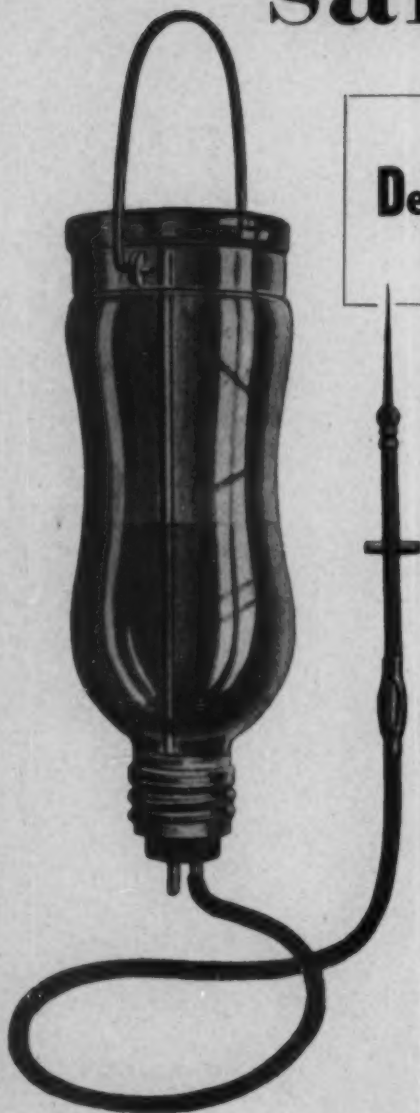


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G. WALLENIUS—Scand. J. of Clin. & Lab. Inv. 1950. 1226.



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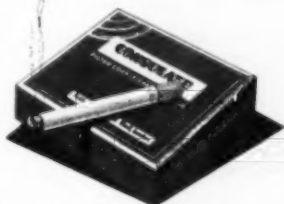


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KWASHIORKOR IN AFRICA*

J. F. BROCK, M.D., F.R.C.P.

Department of Medicine, University of Cape Town
and

M. AUTRET, DR. PHARM.

Chief, Area and Field Branch, Nutrition Division, Food and Agriculture Organization, W.H.O., Geneva

In late 1950, FAO and WHO sponsored a survey in Africa of a nutritional disorder known as kwashiorkor. This investigation, which had been recommended by the Joint FAO/WHO Expert Committee on Nutrition, was undertaken by Dr. J. F. Brock, WHO consultant in nutrition, and Dr. M. Autret, acting for FAO. Their two-month tour took them to Kenya, Uganda, Ruanda Urundi, Belgian Congo, French Equatorial Africa (Middle Congo), Nigeria, the Gold Coast, Liberia, the Gambia, and French West Africa (Senegal). The report on their inquiry is now available in the WHO Monograph Series.¹

WHAT IS KWASHIORKOR?

The term 'kwashiorkor' is etymologically linked with the concept of dyspigmentation of the hair or skin, its origin being a language of the Gold Coast Colony, in which it means 'red boy'. Dr. Brock and Dr. Autret, while recognizing that kwashiorkor cannot yet be accurately defined, offer the following tentative definition: 'A nutritional syndrome (or syndromes) found among indigenous Africans in which characteristically there occurs:

- (a) Retarded growth in the late breast-feeding, weaning, and post-weaning ages, with
- (b) alterations in skin and hair pigmentation,
- (c) oedema,
- (d) fatty infiltration, cellular necrosis, or fibrosis of the liver,
- (e) a heavy mortality in the absence of proper dietary treatment, and
- (f) the frequent association of a variety of dermatoses.'

1. Brock, J. F. and Autret, M. (1952): *Kwashiorkor in Africa*, Geneva. (World Health Organization: Monograph Series, No. 8.) 78 pages. Price: 5s., \$1.00 or Sw. fr. 4.-. Available in English and in French. A Spanish edition has been published by FAO: *El Kwashiorkor en Africa*, Rome. (FAO - Estudios de Nutrición, No. 8.) 73 pages. \$0.75, and is on sale only through FAO sales agents.

* Reprinted with permission from the *Chronicle of the World Health Organization*, March 1952, Vol. 6, No. 3, pp. 61-64.

Any clinical syndrome which includes the first five of these characteristics and occurs in Africa can undoubtedly be called kwashiorkor. A similar syndrome occurring in other parts of the world might reasonably be termed kwashiorkor. It seems to merge into other nutritional syndromes, such as marasmus and Mehlährschaden.

Other clinical features which are frequent, if not fundamental, in kwashiorkor include:

- (1) gastro-intestinal disorders, such as anorexia, digestive upset, diarrhoea, and mild steatorrhea;
- (2) peevishness and mental apathy;
- (3) mild normocytic or slightly macrocytic anaemia, becoming more severe when the syndrome is complicated by parasitic infestation;
- (4) atrophy of the acini of the pancreas, resulting in decline in the enzymatic activity of the duodenal contents.

ETIOLOGY

The authors made as detailed a study as possible, in the time allotted, of the nutrition of African children and the various factors which influence it. They summarize their findings thus:

'African mothers do not receive a special supplement to the diet during pregnancy and lactation. The birth-weight of African infants is, in general, below that of European infants. Breast feeding allows the infant to grow fairly normally during the first few months of life. When breast feeding becomes insufficient, which often happens before the fourth and sixth months, the infant's diet is supplemented by gruels of cassava, bananas, maize, sweet potatoes, millet or rice, all essentially foods rich in carbohydrate and poor in proteins, vitamins, and mineral salts. This practice is continued and extended during the period of weaning. The infant is hardly ever given animal milk at this period. On exceptional occasions it may receive a little meat or small amounts of fish. Fruits (mango, papaya, oranges, etc.) may be included in the diet from time to time when in season, and the same may be said of green vegetables, which are usually given in soup. The



Fig. 1. Group of kwashiorkor cases showing typical symptoms: oedema, pot-belly, miserable expression, altered hair texture (second child from left), and dyspigmented hair (child on extreme left).



Fig. 2. Extensive pellagrous dermatosis of the trunk in a case of kwashiorkor. The scalp has been shaved.

infant partakes of stews containing different ingredients, including chillies, which are likely to do it more harm than good. Towards the age of two or three years, the young child receives the ordinary adult diet which is, in general, better than the gruels which before this were its chief food. While its diet remains unsatisfactory in quality and sometimes in quantity, the soup and the inevitable stew which it consumes contain, in small quantities, vegetables and a variety of other foods, such as beans and peanuts, fish fairly frequently, and sometimes meat. But for a long time the child may be unable to compete with its elders in securing an adequate share of food from the family dish, and in obtaining the quantities of protein needed for growth. It is only when it reaches the age of seven or eight years that its increasing status in the family and its activities outside the home (which enable it to obtain additional foods, such as grubs, etc.) make it possible for its nutritional needs to be more adequately covered.'

Although the present state of knowledge concerning kwashiorkor makes it difficult to establish a precise relationship between this syndrome and nutritional deficiencies, observations of dietary practices and incidence of the disorder seem to indicate that the primary factor is lack of protein. The most obvious protein factors to be considered are certain of the amino-acids, particularly methionine. However, the diets of Africans are markedly deficient in many nutrients; and factors such as vitamin B₁₂, vitamin E, and pantothenic acid need to be taken into account as contributory factors in certain features of the syndromes—e.g. pantothenic-acid deficiencies might be considered in relation to the dyspigmentation of the hair, at least in one of its varieties.

Opinions vary as to the role of parasitic diseases in the clinical manifestations of kwashiorkor, but the authors

conclude that 'whereas tropical parasites are probably always contributory to the etiology of kwashiorkor in the area surveyed and may sometimes play an important part, it is likely that the dietary factor is always dominant.'

TREATMENT

Treatment of kwashiorkor is based on two simple principles: treatment of any infection which may be present, and giving large amounts of skim milk and an adequate and varied diet, the last to be introduced gradually after the first two or three weeks of treatment with milk protein. In very severe cases, it may be helpful in the first few days of treatment to administer human plasma, either intravenously, at a slow rate, into the bone-marrow, or subcutaneously in doses of 100 ml. daily for ten consecutive days.

The authors recommend that the attention of governments be drawn to the efficacy of skim milk in the treatment of kwashiorkor in its early stage, and that skim-milk powder be made available to hospitals and maternity and child-welfare centres in regions in which kwashiorkor is prevalent, through UNICEF assistance, if necessary.

PREVENTION

Specific measures are suggested for preventing kwashiorkor, these measures aiming at general improvement of the nutrition of Africans:

1. Production of foods which prevent kwashiorkor should be increased. Fish is particularly important since its production can be expanded more rapidly than that of milk and meat. Pulse and vegetables should be cultivated and steps taken to encourage consumption of ground-nuts. With regard to vegetables, attention should be paid to the yield of protein per unit area as well as to the yield of calories. Cereals, particularly millet and sorghum, should

be grown wherever possible in preference to manioc. Village cultivation of the needed foods should be expanded.

2. Provision should be made to relieve shortages of food in the 'hungry months' through suitably storing reserve stocks of food, both by families and by communities.

3. Efforts should be made to educate mothers to improve the feeding of children, especially during the weaning period.

Consideration might be given to the possibility of attacking kwashiorkor through the 'demonstration area' technique, selecting a suitable area in which the condition is prevalent and attempting to introduce and develop preventive measures. Such a project might be undertaken jointly by FAO and WHO through the Technical Assistance Programme of the United Nations.

RESEARCH

The problem of kwashiorkor offers many opportunities for clinical and biochemical research. Among the subjects which should be investigated are: the etiology of the dermatoses associated with kwashiorkor; the effect of different amino-acids and other factors such as vitamin B₁₂ in the treatment of the disorder; the value of pulse and vegetables in preventing kwashiorkor and the best methods of cooking and preparing kwashiorkor-preventing foods, such as milk substitutes from ground-nuts; anthropological and social investigations on the weaning and feeding customs in Africa; and quantitative and qualitative studies of the breast milk of African mothers at different stages of lactation and under different maternal diets. 'Dr. Brock and Dr. Autret suggest that FAO and WHO should stimulate and co-ordinate such research in Africa and in other parts of the world in which kwashiorkor is prevalent.'

ABSTRACTS

Venereal Disease Control. John J. Wright. (1951) J. Amer. Med. Assoc., 147, 1408.

Since the National Venereal Diseases Control Act was passed in 1938 the reported mortality and insanity due to syphilis has declined steadily in the U.S.A. Nevertheless, despite the widespread use of Penicillin, the number of cases of congenital syphilis reported has remained constant. To combat this the intensification of case-finding activities is advised.

L. T. Wright, H. Schreiber, W. I. Metzger and J. W. Parker. *An Evaluation of Aureomycin Therapy in Peritonitis.* Surg., Gynec. Obstet., 1951, 92, pp. 685-689.

A chain of circulatory disturbances, electrolyte imbalance, paralytic ileus, and toxæmia is caused by the invasion and uncontrolled growth of bacteria within the peritoneal cavity. Delay in surgical intervention invariably leads to fatal peritonitis.

Chemotherapeutics have been superseded by antibiotics and there has been a steady decrease in deaths from peritonitis. Penicillin, streptomycin have failed to prevent bacterial deaths following successful surgery. Aureomycin was selected, in the hope of efficiently reducing this mortality rate. It was used as the sole antibiotic in 235 cases of peritonitis of all types.

All cases were managed as follows: prior to the operation,

intravenous infusions are given to correct dehydration and/or any electrolyte imbalance, and gastric suction is started. When peritonitis is diagnosed before operation aureomycin therapy is instituted, 500 mgm. intravenously. After the operation gastro-intestinal decompression is maintained as long as necessary; the fluid volume is kept normal by intravenous infusions of glucose, saline or blood, with vitamin therapy, with early ambulation.

Immediately post-operatively intravenous aureomycin, 500 mgm. twice a day, is continued until the clinical condition has improved so that the fluids and the drugs may be taken by mouth, 500 mg. twice a day or 250 mg. every 6 hours. Since the introduction of buffered aureomycin hydrochloride there has been a marked decrease in chemical phlebitis by intravenous administration.

In children under 12 years of age peritonitis, secondary to appendiceal perforation is very quickly controlled with aureomycin. No deaths occurred, though previously mortality was high. Dosage was 300 to 500 mgm., depending on the age and weight of the child, twice a day and intravenously. The mixed bacterial flora usually found in peritonitis and due to perforated gastro-duodenal ulcer, is also sensitive to aureomycin.

It may be concluded that buffered aureomycin hydrochloride is the antibiotic of choice in the treatment of peritonitis.

South African Medical Journal

Suid-Afrikaanse Tydskrif vir Geneeskunde

EDITORIAL

VAN DIE REDAKSIE

MANUAL METHODS OF ARTIFICIAL RESPIRATION

Recently a thoroughly critical survey has been made of manual methods of artificial respiration by a very distinguished team of investigators¹ whose carefully considered conclusions will come as a surprise to most practitioners and teachers of First Aid in the English-speaking world where the Schafer prone-pressure method has stood unchallenged for many years.

In the Scandinavian countries, the Holger Nielsen method has been used very successfully for some 20 years. It is one of the varieties of artificial respiration classified as 'push-pull' and, on the evidence available, it seems necessary to supplant the traditional Schafer method by a push-pull variety of artificial respiration. This should be done not only because of sound physiological principles (which require greater ventilation than is afforded by the Schafer method) but also because reasonably simple and easily taught push-pull methods are available. It is a matter of some surprise that the Schafer method provides the least effective technique for ventilating the lungs of the apnoeic subject. In contrast, the various push-pull methods provide greater ventilation and would probably have produced an even greater proportion of successful resuscitation than has been provided by the very valuable traditional Schafer method.

The well-known Silvester method is, of course, one of the push-pull varieties of artificial respiration. Although it is physiologically adequate, it has certain serious practical disadvantages, e.g. it requires 2 operators for effective performance and when the victim is supine, the tongue often falls back and prevents any ventilation at all.

Any acceptable method of artificial respiration should give the greatest ventilation possible, be taught easily, be capable of performance by the young as well as those in the prime of life, permit performance for prolonged periods of time and should not have the severe practical limitations which the Silvester method imposes. Of the push-pull methods investigated, the lifting of the hips alternating with pressure on the back (the so-called hip lift-back pressure method) gives the greatest pulmonary ventilation. It is also easily taught. However, it requires able-bodied men and women to carry out this technique for long periods of time, but young adults are able to use this method for 10-minute performance periods. A modification known as the hip roll-back pressure method, which requires less physical energy on the part of the operator, but is more complicated in its actual performance, requires very serious consideration, although it tends to be performed clumsily when it has to be carried out for any length of time. The arm lift-back pressure method gives ventilation equal to twice that produced by the

HANDMETODES VAN KUNSMATIGE ASEMHALING

Onlangs is daar 'n deur-en-deur kritiese opname gemaak van handmetodes van kunsmatige asemhaling deur 'n baie beroemde span navorsers,¹ wie se wel deurdagte gevolgtrekkings vir die meeste praktisyns en noodhulp-instrukteurs in die Engels-sprekende wêreld waar die Schafer-platdrukmetode vir baie jare onaanvegbaar gestaan het, 'n verrassing sal wees.

In die Skandinawiese lande was die Holger Nielsen-metode vir ongeveer 20 jaar met groot sukses gebruik. Dis een van die soorte kunsmatige asemhaling wat geklassifiseer word as 'druk-trek' en, volgens beskikbare getuienis, lyk dit nodig om die tradisionele Schafer-metode deur 'n druk-trek-metode te vervang. Dit moet nie net om gesonde fisiologiese beginsels (wat meer ventilasie as wat deur die Schafer-metode verskaf word, vereis) gedoen word nie, maar ook omdat betreklike eenvoudige en maklik leerbare druk-trek-metodes beskikbaar is. Dit is ietwat verbasend dat die Schafer-metode die minste effektiewe tegniek vir die ventilering van die longe van die apnoeïese slagoffer verskaf. In teenstelling verskaf die verskeie druk-trek-metodes groter ventilasie, en sou waarskynlik self 'n groter verhouding suksesvolle herlewings voortgebring het as wat deur die baie waardevolle tradisionele Schafer-metode bereik is.

Die welbekende Silvester-metode is natuurlik een van die druk-trek-soorte van kunsmatige asemhaling. Hoewel dit fisiologies genoegsaam is, het dit sekere ernstige praktiese nadele bv. dit vereis twee operateurs vir doeltreffende toepassing en as die slagoffer op die rug lê, val die tong dikwels terug en verhoed enige ventilasie hoegenaamd.

Enige aanneembare metode van kunsmatige asemhaling moet die grootste moontlike ventilasie verskaf, maklik wees om te leer, toepasbaar wees deur die jeug soewel as deur diegene wat in die bloei van die lewe is, vir verlengde tydperke uitgevoer kan word, en moet nie die ernstige praktiese tekortkomings hê wat die Silvester-metode inhou nie. Van die druk-trek-metodes wat ondersoek is, gee die opstig van die heupe wat afgewissel word met druk op die rug (die sogenaamde heuplig-rugdruk-metode) die grootste longventilasie. Dit is ook maklik om te leer. Nietemin vereis dit liggaamlike geskikte manne en vroue om hierdie tegniek vir lang tydperke uit te voer, maar jong volwassenes is in staat om hierdie metode vir tydperke van 10 minute uit te voer. 'n Wysiging bekend as die heuprol-rugdruk metode, wat minder fisiese inspanning aan die kant van die toepasser vereis, maar in sy werklike toepassing meer ingewikkeld is, vereis baie ernstige oorweging, hoewel dit die neiging is om dit lomp toe te pas wanneer dit vir 'n lang tyd uitgevoer moet word. Die armlig-rugdruk-metode gee ventilasie gelyk aan twee-

1. Gordon, A. S., Sadove, M. S., Raymon, F. and Ivy, A. C. (1951): J. Amer. Med. Assoc., 147, 1444.

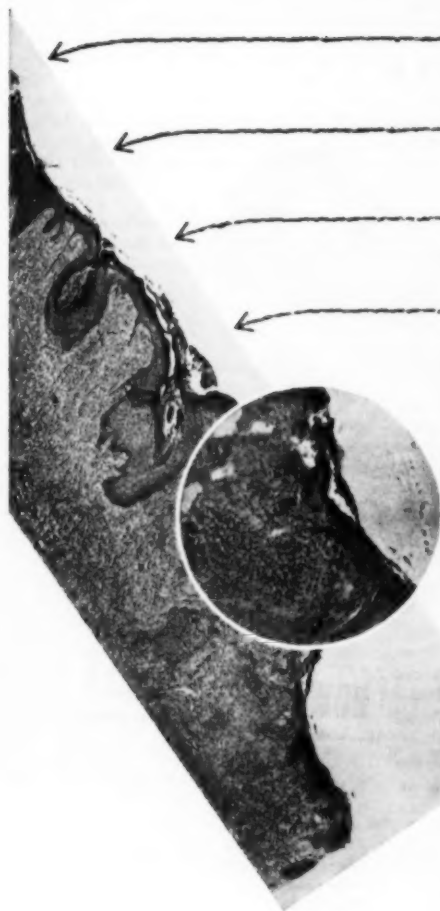
1. Gordon, A. S., Sadove, M. S., Raymon, F. and Ivy, A. C. (1951): J. Amer. Med. Assoc., 147, 1444.

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Schafer method, it is easy to teach and it can be performed fairly easily by small adults and even children who understand the principles involved. Like the Schafer method, it has the virtue of being readily performed for long periods of time without taxing the endurance of the operator (in contrast to the various hip methods of resuscitation). Thus if the arm of the victim is injured, or if a small operator becomes tired unduly easily, the pressure on the back alone may be employed and will give greater ventilation than the standard prone-pressure method.

While the arm-lift-back pressure method is, therefore extremely suitable for general use, it is not unreasonable that medical and specially trained First Aid personnel should be proficient in the other push-pull techniques, including the hip lift-back pressure method and the arm lift-chest pressure method, particularly as these provide ready alternatives when it is not possible to use certain of the limbs or when the victim cannot be moved from the prone or the supine position.

It is probably not of much practical importance whether the cycle of artificial respiration begins with expiration or inspiration and the conclusions of the Chicago investigators are that 'it may be more practical in the final analysis to begin artificial respiration with the pressure phase.' The recommendations made by the Chicago team are 3-fold:

1. The Schafer prone-pressure method should be replaced by one of the more effective push-pull methods.
2. Of the push-pull methods, the arm lift-back pressure method is preferable for general use.
3. Other push-pull methods that are acceptable, and are specifically applicable in certain circumstances, include the hip lift-back pressure and the Silvester method (arm lift-chest pressure).

These recommendations follow a very critical and exhaustive analysis of the problem and their serious consideration by the medical profession and other organizations concerned with the training of First Aid personnel deserves early and urgent consideration.

maal dié wat deur die Schafer-metode verkry word, dit is maklik om te leer, en kan betreklik maklik deur tingerige volwassenes en self kinders wat die betrokke beginsels verstaan, toegepas word. Net soos die Schafer-metode besit dit die deug om gereidelik vir lang tydperke toegepas te word, sonder om die uithouvermoë van die toepasser te ooreis (in teenstelling met die verskeie heup-metodes van herlewing). Derhalwe, as die arm van die slagoffer beseer is, of as 'n tingerige toepasser baie maklik moeg word, kan die druk op die rug alleen gebruik word en sal meer ventilasie gee as die standaard platdruk metode.

Terwyl die armlig-rugdruk metode, derhalwe, vir algemene gebruik uiters geskik is, is dit nie onredelik dat mediese en spesiaal opgeleide noodhulppersoneel bedrewe behoort te wees in die ander druk-trek-tegnieke nie, met inbegrip van die heuplig-rugdruk-metode en die armlig-borsdruk-metode, veral omdat hierdie metodes by die hand liggende alternatiewe verskaf wanneer dit nie moontlik is om sekere ledemate te gebruik nie, of wanneer die slagoffer nie van die vooroor- of die rug-posisie verander kan word nie.

Dit maak waarskynlik nie veel saak of die siklus van kunsmatige asemhaling met uitademing of inademing begin nie, en die gevolgtrekkings van die Chicago ondersoekers is dat, dit in die finale ontleding meer prakties mag wees om kunsmatige asemhaling met die druk-fase te begin'. Die aanbevelings wat deur die Chicago span gemaak is, is drievoudig:

1. Die Schafer-platdrukmetode moet deur een van die meer doeltreffende druk-trek-metodes vervang word.
2. Van die druk-trek-metodes is die armlig-rugdrukmetode vir algemene gebruik verkieslik.
3. Ander druk-trek-metodes wat aanneemlik is, en spesifiek onder sekere omstandighede doelmatig is, sluit die heuplig-rugdruk en die Silvester-metode (armlig-borsdruk) in.

Hierdie aanbevelings volg op 'n baie kritiese en volledige ontleding van die probleme en hulle verdien vroeë en dringende oorweging deur die mediese professie en ander organisasies betrokke met die opleiding van noodhulp-personeel.

THE TECHNIQUE OF HIGH OESOPHAGO-GASTRIC ANASTOMOSIS

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When the oesophagus is obstructed, either by carcinoma or by cicatricial stricture, at or above the level of the arch of the aorta it becomes necessary, on occasion, to excise the lesion and restore the continuity of the alimentary tract or else to by-pass the obstruction.

Let us say at once that the days of multiple stage ante-thoracic oesophago-plasty are, mercifully, past. These left the patient almost as badly off as he was before the operation and most often he did not survive to live a normal or even a comfortable life.

It is now generally accepted that the operation of choice

is some form of oesophago-gastrostomy and discussion revolves around the detail of technique. The variety of factors concerned does not seem to us to justify the assertions of the more dogmatic advocates of any single method.

It is the purpose of this paper to describe some of the techniques we have used in performing oesophago-gastric and pharyngo-gastric anastomoses. By emphasizing their disadvantages rather than their advantages, the failures rather than the successes, we hope to indicate the evolution of our present ideas concerning the choice of method.

The operations described in illustration have all been

performed to relieve obstruction of the oesophagus due to cicatricial stenosis by corrosives. Unfortunately few patients with carcinomatous lesions reach the surgeon in a fit state to undergo a major operation and still fewer have an operable lesion on thoracotomy. Technically the operation for benign stricture of the oesophagus is a little more difficult than that for carcinoma, but the principles are the same.

SURVEY OF EXISTING METHODS

History. As long ago as 1922 Kummel made attempts to perform oesophago-gastric anastomosis in the neck using only an abdominal and cervical incision. As a result of improvement in anaesthetic methods operations within the thorax later lost their terrors and it was in 1938 that Phemister performed the first successful oesophago-gastrostomy in the thorax for a cancer of the distal part of the oesophagus.

The operation of supra-aortic oesophago-gastrostomy is a more recent development in oesophageal surgery. In 1945 Sweet published an account of 20 patients in whom he resected the oesophagus for tumours situated at or near the aortic arch and in whom he successfully anastomosed the stomach to the upper end of the oesophagus lateral to the arch. In 1946 Ivor Lewis described his experiences in treating 7 patients with carcinoma of the middle third of the oesophagus by resection and high right-sided anastomosis of stomach to oesophagus in the thorax.

Garlock in 1948, working at the Mount Sinai Hospital in New York, demonstrated that in a patient of average height the stomach could be mobilized sufficiently to permit its transplantation *above the apex of the chest* without impairing its vitality and that it could then be anastomosed to the cervical oesophagus in the neck.

A. Dickson Wright has advocated a cervical incision for oesophago-gastric anastomosis since 1947 and uses this method for all carcinomas of the upper half of the thoracic oesophagus.

Thoracic Supra-Aortic Anastomosis. Sweet (1946a, 1946b) used a left-sided approach through the eighth rib bed cutting the posterior ends of the fifth, sixth and seventh ribs to improve the approach. He notes that the thoracic duct may be injured, in which case it should be ligatured. Division of the upper one or two left intercostal arteries may aid dissection on the right of the aortic arch. He points out that in separating the oesophagus from the aortic arch branches from the aorta and bronchial arteries which provide the blood supply of this part of the oesophagus are divided and the oesophagus then depends on the circulation from the inferior thyroid artery. Therefore the oesophagus should be divided very high in the chest as near as possible to the branches from the inferior thyroid artery.

The left gastric artery must always be divided in order to bring the stomach high enough into the chest. It is important to treat the stomach, mobilized through a diaphragmatic incision, gently and to prevent bruising as its blood supply is precarious. He makes a 3-layer anastomosis between the oesophagus and a circular opening made in the stomach and uses interrupted stitches in anastomosing the mucosa.

In Sweet's experience there is a greater mortality and complication rate associated with high anastomosis. Of 14 resections of carcinoma with anastomosis below the

arch, 2 cases died: of 18 where the anastomosis was above the arch, 6 died.

Ivor Lewis described a new operation in 1946. After first mobilizing the stomach by laparotomy a *right* transpleural oesophagectomy was performed 10-15 days later and the stomach brought up through the oesophageal hiatus, fixed at any required level in the right pleura, and an end-to-side oesophago-gastrostomy performed. There were 5 recoveries in his first 7 cases operated upon by this method for carcinoma.

Tanner (1947) used a similar procedure to that of Lewis, but did it in one stage and also mobilized the cardia and lower oesophagus through the lower incision, thereby avoiding the most difficult part of the thoracic operation. By this means a very high oesophago-gastric anastomosis is possible, the fundus of the stomach being at the apex of the pleural cavity.

Cervical Anastomosis. Garlock (1948) reported a case in which he had brought the stomach through the apical aperture of the chest and anastomosed its cardiac end to the oesophagus in the lower part of the neck. He advocated a combined abdomino-thoracic incision with simultaneous exposure of the upper abdomen and the left thoracic cavity. Because the incision is a large one, he said, the approach is more direct and all operative manoeuvres can be carried out under direct vision with minimal trauma.

Sweet (1948), finding difficulty in drawing the fundus of the stomach through the thoracic inlet for anastomosis to the cervical oesophagus, made a left cervical incision, removed the inner half of the clavicle and the adjacent first rib and then drew the stomach up through the apex of the pleura and anastomosed it to a short stump of cervical oesophagus.

Most surgeons now find it unnecessary to resect parts of the clavicle and first rib in order to draw the stomach through the superior thoracic inlet (Tanner, 1951).

Allison and others (1950) have used a 'two-rib incision' for intrathoracic anastomosis. Through a single skin and muscle incision the left fourth to eighth ribs are exposed by retraction of the scapula. Through the bed of the seventh or eighth rib the oesophagus and stomach are mobilized, the former being resected if necessary and then the fourth rib is removed and the higher dissection and anastomosis are made through an incision in the bed of this rib.

Scott and Hanlon (1950) use a thoracotomy incision for gastro-oesophageal mobilization and a cervical incision for oesophago-gastric anastomosis.

Excision of the Oesophagus in Benign Stricture. When treating, by oesophago-gastric anastomosis, a complete or almost complete obliteration of the lumen of the oesophagus due to cicatricial stricture, Sweet has performed subtotal oesophagectomy. His reasons for resecting the oesophagus are that it is necessary to divide the oesophagus at the cardia in order to mobilize the stomach adequately and that an end-in-side anastomosis of the oesophagus to the stomach is easier to perform and better functionally than side-to-side anastomosis at a high level in the chest. He notes that the actual mobilization of the oesophagus in such cases is more difficult than in the average carcinoma case because of the dense adhesions resulting from peri-oesophagitis.

Tanner has found satisfactory results from mobilizing

but not dividing the lower half of the oesophagus and then performing the high side-to-side oesophago-gastric anastomosis.

PERSONAL EXPERIENCES

THE RIGHT-SIDED ANASTOMOSIS (FIGS. 1, 2, 3)

A summary of the cases referred to is shown in Table I.

Early in 1948 we began to use a right-sided high oesophago-gastrostomy for benign cicatricial stricture of the oesophagus. The large number of Native and Coloured patients suffering from the effects of swallowing corrosive provided both the need and the opportunity. The method, which was essentially that described by Ivor Lewis, was chosen because one of us (L. F.) had already had considerable experience of its use.

A typical example of this operation was that performed on F. I., aged 25, a Coloured female who had suffered from an extensive impassable stricture for 6 years:

A midline abdominal incision was made encircling the gastrostomy, which detached easily. There was about 2 oz. of bleeding from the short gastric vessels while skeletonizing the stomach; abdominal part otherwise normal.

The patient was then turned on to her left side and re-draped, and a thoracotomy done through the right fifth intercostal space. The stomach was easily drawn up through the oesophageal hiatus after incising the pleura behind the pulmonary ligament. In the upper mediastinum the oesophageal stump was seen to bulge into the chest like an egg, terminating abruptly at the stricture site. It was an easy side-to-side anastomosis to make. The oesophagus was thick and fixed to the trachea and it was not necessary for it to be removed or divided. Interrupted silk sutures in 2 layers were used for the anastomosis. At the conclusion the

TABLE I: SUMMARY OF THE CASES REFERRED TO IN THE TEXT
HIGH OESOPHAGO-GASTRIC ANASTOMOSIS FOR BENIGN STRICTURE
EVOLUTION OF METHOD

Patient	Type of Operation	Side of Stoma	Date of Operation	Result		Possible Reason for Imperfect Result	Post-operative Symptoms	Race	Sex	Age
				Immediate	Remote					
F. I.	Ivor Lewis-Tanner	R	24 November 1949	Excellent	Excellent	—	Palpitations after large meal (1951)	Coloured	F	25
B. N.	"	R	4 November 1948	Excellent	Good	No T-incision at anastomosis	Subjective difficulty swallowing meat (1950)	Native	F	19
M. H.	"	R	26 November 1949	Poor	Good	Failure to maintain lumen of "inert segment" above the anastomosis	Dysphagia. Third stage cervical oesophago-gastrostomy necessary. 10 November 1950	Indian	F	18
I. M.	Ivor Lewis	R	21 May 1951	Poor	Undetermined	Anastomosis into. No T-incision	Dysphagia. Requires third stage operation in week	Native	M	4
D. P.	Ivor Lewis-Tanner	R	22 April 1950	Excellent	Complicated	Redundant stomach, stasis, partial obstruction	One episode of haematemesis 16 May 1951	Coloured	F	17
E. K.	"	R	17 January 1951	Poor	Complicated	Redundant stomach with compromised blood supply, partial obstruction	Died. Acute gastric ulcer with perforation. (2 February 1951)	Native	F	21
J. J.	"	R	22 August 1951	Good	Good	Redundant stomach	Nil (2 March 1952)	Coloured	M	1½
M. S.	Thoraco-abdominal one incision	L	4 October 1951	Excellent	Excellent	—	Nil (2 March 1952)	Coloured	F	19
Mrs. D. K.	Thoraco-abdominal "two-rib"	L	22 December 1951	Excellent	Excellent	—	Nil (2 March 1952)	European	F	36
Miss M. S.	Thoraco-abdominal and cervical	L	16 October 1951	Complicated	Excellent	Impossibility of immobilising high anastomosis	Fistula and empyema (2 October 1951). Nil (1 March 1952)	European	F	23
G. N.	Thoraco-abdominal and cervical	L	1 November 1951	Excellent	Excellent	—	Nil (1 March 1952)	Native	F	

patient's general condition was fair to poor. The operating time was 3½ hours and 1,500 c.c. of blood were given.

Post-Operative Progress. When last seen on 7 August 1951, she was swallowing normally, almost 3 years having elapsed since her operation. Barium swallow showed no hold-up, the stomach was narrow and there was a minimal sump above the diaphragm which emptied readily on bending over to the left. The old oesophagus was seen as a 'rat-tail' diverticulum below and medial to the anastomosis. Her only complaint was of palpitations after a large meal.

COMPLICATIONS

Although on the whole this type of operation gave satisfaction it gradually became clear as more and more were done and followed up that certain complications might occur to mar the perfection of the result. These complications are illustrated by the following cases:

B. N., a Native female, aged 19 years, with mild stenosis of the stoma. An oesophago-gastrostomy was performed on 4 November 1948. An abdominal incision with skeletonization of the stomach was followed by a right-sided thoracotomy through the bed of the fourth rib. The oesophagus was mobilized at the level of the neck of the first rib and the stomach brought up and anastomosis performed. The convalescence was smooth.

Two years later, when seen as an out-patient on 6 November 1950, she felt and looked very well. She claimed she could not swallow meat very well but otherwise took a normal diet. However, no evidence of stricture was seen on barium swallow.

M. H., an Indian female, aged 18 years, with stenosis above the stoma. On 26 October 1949 this girl had Lewis' operation done in one stage. The stomach was easily mobilized and anastomosed to the side of apparently healthy oesophagus at the level of the body of the third thoracic vertebra. The anastomosis was made around a tube which was left *in situ* for 48 hours.

The post-operative progress was rather stormy for about 4 days and feeding was accomplished through her pre-existing jejunostomy. She got out of bed on 3 November, took oral feeds of fluid on 4 November, and mashed feeds on 7 November.

One month later, on 7 December 1949, a barium swallow showed the stomach in the right chest. The pylorus was seen at the level of the eleventh thoracic vertebra in the midline. Barium passed down very readily and she could eat anything.

On 28 December 1949 when seen again in the Out-Patient Department she could not swallow and was re-admitted to the wards. Oesophagoscopy showed a stricture of the oesophagus 18 cm. from the teeth, i.e. at the inlet of the thorax and above the anastomosis, with an orifice about ¼ inch in diameter. This was readily dilated.

On 4 January 1950 oesophagoscopy was repeated and showed that the orifice had closed down. It was readily dilated to the diameter of No. 14 gum-elastic bougie. After this barium was seen to pass readily into the stomach and showed no hold-up at the stoma. The stomach was elongated and lying posteriorly with a bulge laterally just above the diaphragm.

On 11 January 1950 oesophagoscopy again showed a stricture 18 cm. from the teeth, i.e. about 5 cm. above the anastomosis. The stricture was hard, fibrous and localized. Dilatation started with No. 6 bougie on this occasion and was carried up to No. 17 bougie without great difficulty.

Subsequently, after many attempts at dilatation, a further operation became necessary in this case (*vide infra*). Looking back to the pre-operative notes and films it became clear that the post-operative stricture developed at the site of an inert segment of oesophagus. This inert segment, probably representing an area of superficial corrosive damage, had been noted previously but it had maintained a very inadequate lumen and was presumed to be a static lesion of no moment (Fig. 1).

I. M., a Native male aged 4 years, with severe stenosis at the stoma. This boy had an Ivor Lewis operation in the method originally described.

On 16 May 1951, skeletonization of the stomach was performed. At the end of the operation the patient's condition was poor. He was therefore returned to the ward for resuscitation. He was given blood, Methedrine and Aminophylline. In the evening his condition had much improved.

On 21 May 1951, a right-sided thoracotomy was performed and the stomach brought up high into the thorax. The anastomosis was made around a tube and extrapleurally since traction was necessary to bring healthy-looking cervical oesophagus into the thorax.

The post-operative recovery was satisfactory but by 3 June 1951 it was obvious that he was not swallowing any better than before the operation. On 17 June oesophagoscopy showed a pin-hole opening of a stricture at the site of the anastomosis. Attempted dilatation failed.

This boy will require a third stage operation.

D. P., a Coloured female aged 17 years. On 22 April 1950 this patient had an Ivor Lewis-Tanner oesophagogastronomy.



Fig. 1. Case M. H.
A.—Stricture commencing above anastomosis.
B.—Anastomosis.
C.—Stomach outlined by barium.
D.—Fluid level in the stomach.

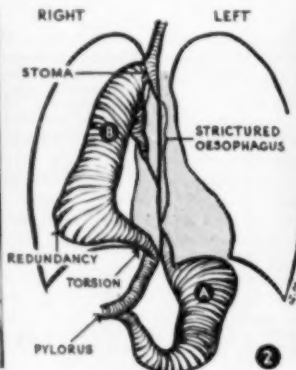


Fig. 2. Ivor Lewis-Tanner oesophago-gastrostomy. The stomach shown in its pre-operative (A) and post-operative (B) positions. Compare Fig. 3.



Fig. 3. Case J. J. Barium-filled stomach after right-sided oesophago-gastrostomy.
A.—Pylorus.
B.—Duodenum.
C.—Note redundant stomach.

Operation and recovery were uneventful and the anastomosis was made at the level of the neck of the second rib. The immediate result was excellent.

When re-admitted to hospital 13 months later she was 7 months' pregnant. Suddenly, 2 days before, she had vomited about a pint of blood.

Oesophagoscopy showed that the instrument could pass directly and easily into the stomach, i.e. the stoma seemed to have straightened itself out and come into line with the pharynx. The true oesophagus could be seen displaced to the left. The stomach contained foul fluid with altered blood. No stricture was seen at the stoma. No ulcer or inflammation of the oesophagus was present.

E. K., a Native female aged 21 (gastric erosion). On 21 January 1951, a high Ivor Lewis-Tanner oesophago-gastrostomy was performed, the stomach being brought up into the right chest. Two modifications were introduced. A small segment was excised from the lateral wall of the oesophagus and anastomosis made around the hole as a precaution against stricture. The operation was done as a combined synchronous procedure, one surgeon working on the chest and one on the abdomen.

On 27 January bowel sounds were established and the intercostal drain and the gastric suction apparatus were dispensed with.

On 11 February the patient became breathless. Tapping the right chest revealed the presence of an empyema and a rib resection was done for drainage. Stomach contents escaped.

The patient went rapidly downhill and died, 3 weeks after the operation, on 15 February.

Autopsy showed that the suture line of the anastomosis was intact. The pylorus was kinked, leading to some degree of obstruction and in the middle third of the stomach an acute ulcer had developed which had perforated and given rise to a pyo-pneumothorax.

MODIFICATIONS

Realization of the difficulty there can be in maintaining a patent anastomosis between stomach and oesophagus has prompted us to introduce some modification of the operation. This is to use an inverted T-shaped incision in the oesophagus for the anastomosis and to take very great care to ensure that the stomach is anastomosed to normal oesophagus. Histological confirmation that this latter has been attained can be secured by excising the corners of the T-shaped incision and sectioning the tissue thus obtained. Since adopting this technique there has been no more stricture formation at the site of the anastomosis.

The occurrence of haematemesis in case D. P., although controlled and happily not repeated, was a prelude to the sad case of E. K., who after operation developed an acute gastric erosion with intrathoracic perforation and death. We felt that the probable cause of the ulceration and haematemesis in these cases was stagnation of the stomach contents (seen in D. P.) due to redundancy of the stomach plus perhaps some duodenal or pyloric obstruction by torsion (Fig. 2). In the case of J. J. a deliberate attempt was made to overcome these difficulties:

J. J., a Coloured Male aged 18 Months. On 22 August 1951 a right-sided gastro-oesophagostomy was performed. The stomach was mobilized through a laparotomy incision. The previous gastrostomy had caused very few localized adhesions. On thoracotomy the lower oesophagus was found very adherent to surrounding structures and separation was difficult. The upper end of the oesophagus was very dilated. Anastomosis was performed with an inverted T-shaped incision in the oesophagus and hitching of the stomach to the apex of the thorax.

Post-operatively the anastomosis is perfect (1 March 1952) and no obstruction is present there. There are no symptoms but barium swallowed shows a redundant stomach, its distal third lying transversely on the diaphragm, which only empties freely in certain postures (Fig. 3).

THE LEFT-SIDED ANASTOMOSIS

In the case of another girl, M. S., the mischance of a perforated oesophagus during attempts at dilatation of a cicatricial stricture of the oesophagus led to a right-sided empyema thoracis. Consequently, when it became obvious that gastro-oesophagostomy would be necessary, the choice of a left-sided thoracotomy was thrust upon us.

M. S., a Coloured Female aged 19 Years. Operation on 4 October 1951. Gastro-oesophagostomy. Thoraco-abdominal incision made through the eighth interspace and a 4-inch segment of costal margin excised. Incision carried across left rectus abdominis muscle. The adherence of the stomach to the liver and spleen was not great. The gastrostomy was freed. Stomach skeletonized. The incision was then extended backwards along the eighth intercostal space to within 2 inches of the midline. The aorta was then mobilized by dividing intercostal vessels and the oesophagus isolated. The anastomosis was performed without tension but at a distance, and hampered by the upper ribs. The diaphragm was reconstituted around the stomach.

The long time taken to perform the operation in this case (over 3 hours) was undoubtedly due to the difficulty in making the anastomosis as a result of the poor exposure provided by the single incision. Mobilization of the stomach and lower oesophagus was comparatively easy through the eighth intercostal incision, but the anastomosis had to be done under conditions falling short of the ideal.

The lessons learnt at this stage, after 3 years, were applied at the operation on Mrs. D. K., an example of what we now consider the best procedure for a high intra-thoracic gastro-oesophagostomy.

Mrs. D. K., a European aged 36 Years. Operation was performed on 22 December 1951. A left-sided thoraco-abdominal incision was made in the eighth intercostal space and extended through the costal margin and the diaphragm. The stomach and lower oesophagus were mobilized in the usual manner. The scapula was then drawn forward and a further incision made in the third intercostal space. This gave very good exposure for a 2-layer anastomosis of stomach to healthy oesophagus on the neck of the first rib. The stomach lay snugly taut but not tense and it was not necessary to undo the existing gastrostomy which was used for feeding for a day or two post-operatively. The operating time was 24 hours.

On 10 January 1952 the patient was swallowing everything perfectly, gaining weight, the wound healed and the stoma wide.

ANASTOMOSIS IN THE NECK

On the Right Side. When we turn to the problems of oesophago-gastrostomy in the neck our experience is limited to 5 operations, but 3 examples may be given illustrative of this formidable undertaking.

M. H. (vide supra), an Indian female aged 18, had previously had a high oesophago-gastrostomy in the thorax, followed by stricturing above the anastomosis. On 10 September 1950, she was re-admitted with dysphagia. She had been unable to swallow a No. 12 bougie and the dysphagia had been progressive. The nutritional state of the patient was excellent and the decision was taken to approach the cervical oesophagus and to bring the stomach up into the neck. At operation a right-sided cervical collar incision was made. The oesophagus was isolated and split vertically for 1½ inches, this carrying the incision to ½ inch above the stricture. The stomach was then mobilized by blunt dissection through the thoracic inlet, brought up, incised and the edges of the incision sewn to the cut edges of the oesophageal opening. Tension was considerable. A drain was put into the mediastinum.

On 15 September there was a profuse discharge from the neck wound. Stomach fluid was expelled with every inspiration and cough. A suction apparatus was attached to an invaginating stomach tube passed through the mouth. The open wound was lightly packed with vaseline gauze.

The sinus rapidly closed taking in all about 2 weeks to reach pin-point size. On 10 October 1950 the patient was discharged. When seen on 22 January 1951 she was swallowing all food without difficulty, and maintaining dilatation with a No. 20 bougie.

On 13 December 1951 the patient was re-admitted to hospital. She said she had not been swallowing the bougie recently and had developed some dysphagia. The stricture was readily dilated to No. 24 bougie and she was discharged a week later.

The result in this case was satisfactory but the patient is still liable to develop stenosis at the new anastomosis if she does not practise self-bougination.

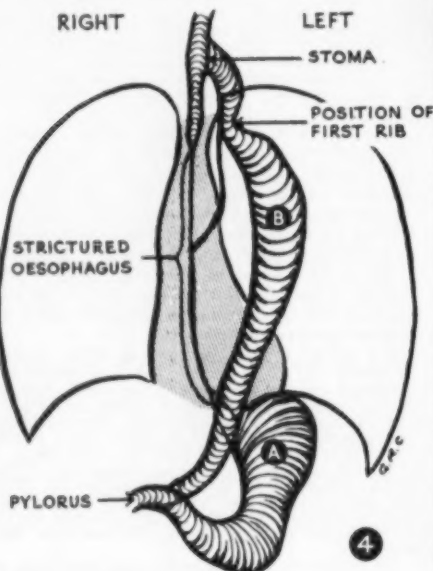


Fig. 4. Left-sided oesophago-gastric anastomosis in the neck. The stomach shown in its pre-operative (A) and post-operative (B) positions. Compare Fig. 7.

On the Left Side (Fig. 4).

Experience with the left-sided thoraco-abdominal incision has led us more recently to use this for mobilization of the stomach and to use a transverse cervical incision through which to perform the anastomosis.

Miss M. S., European aged 23 years (Figs. 5, 6). Operation was performed on 16 October 1951 through a low left thoraco-abdominal incision. The diaphragm was split down to the oesophagus, the stomach mobilized. The pleura behind the subclavian artery was then incised and the fundus of the stomach, attached to a ball swab, placed above the first rib. The chest was then closed, the patient turned on to her back and a cervical collar incision made on the left. The stomach was pulled up by means of the ball swab and was anastomosed to the oesophagus with its upper edge overlying the cricopharyngeus, the lower fibres of which were incised to provide an adequate stoma.

On 22 October a fistula developed in the neck wound.

Continuous suction was applied and the wound healed after about 4 weeks. An empyema developed and was drained and healed. On 27 December 1951, she was swallowing normally and had gained 20 lb. in weight. The X-ray shows a wide ostium.

Our present operative practice for very high stricture of the oesophagus is illustrated by the following case:

G. N., Native female aged 17 years (Fig. 7). At operation (1 November 1951) the patient was placed in the half-lateral

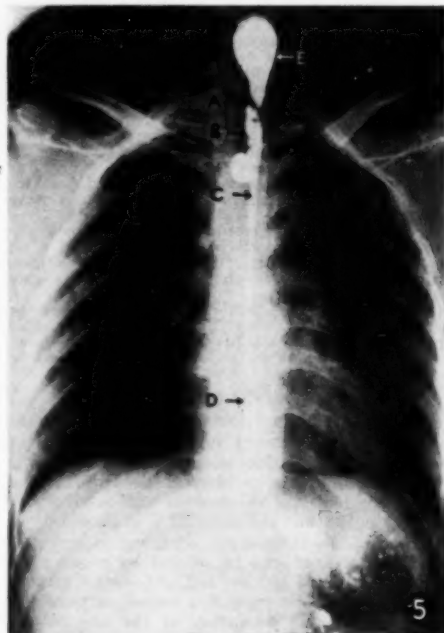


Fig. 5. Case Miss M. S. Barium swallow before operation.

- A.—Short stricture.
- B.—Scarred segment.
- C.—Long stricture.
- D.—Lower end of oesophagus.
- E.—Normal pharyngo-oesophagus.

position with the left arm extended and abducted. While one surgeon mobilized the stomach through a thoraco-abdominal incision another made a cervical incision along the anterior border of the sternomastoid, mobilized the left lobe of the thyroid and the cervical oesophagus and passed a finger into the mediastinum. The lower surgeon then incised on to the side of the finger and the stomach was passed to the upper surgeon behind the subclavian vessels. An anastomosis was easily made without tension just below the inferior constrictor of the pharynx.

On 7 November the patient was very well and could swallow all forms of soft food. On 11 December she was discharged from hospital swallowing normally and rapidly gaining weight.

DISCUSSION

There is no doubt that high oesophago-gastric anastomosis is an operation of magnitude even in these days of enlightened anaesthesiology and skilled resuscitation.



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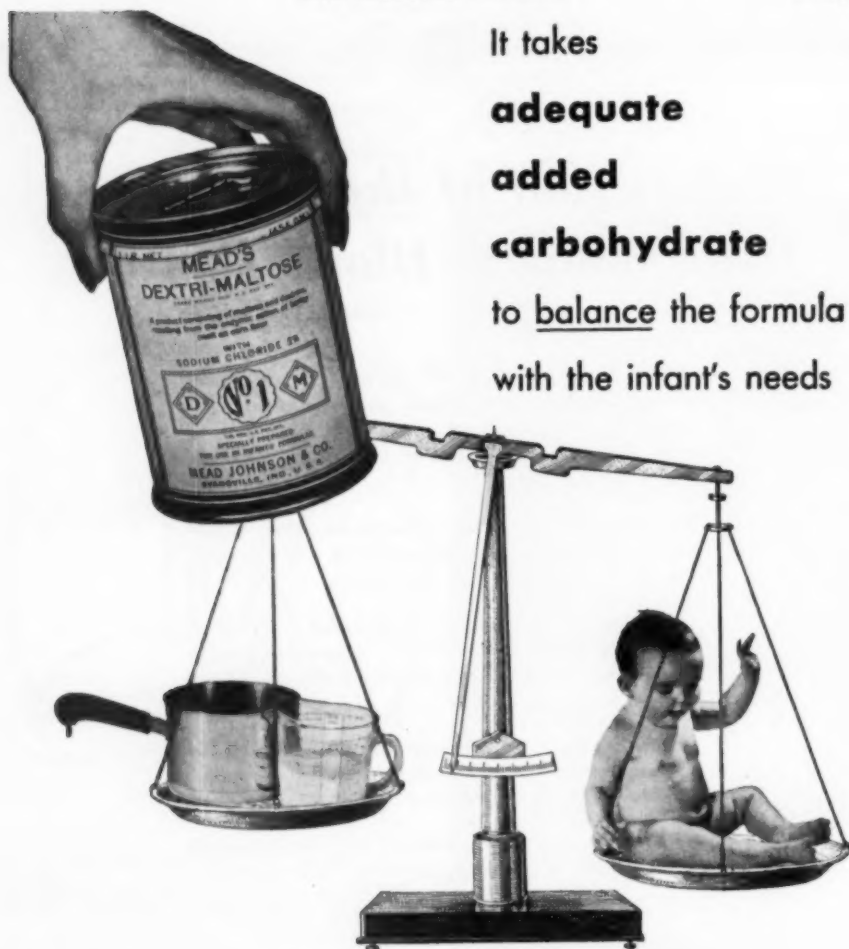
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1. Sayer, R.J.; Michel, J.C.; Moll, F.C., and Kirby, W.M.M.:
Am. J. M. Sc. 221:256 (March) 1951.

2. Michel, G., and Plattner, H.: Schweiz. med.
(Jan. 6) 1951. Wchnsch. 81:3

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Fig. 6. Case Miss M. S. Barium swallow 3 days after operation.
A.—Spill over into trachea. C.—Anastomosis.
B.—Strictured oesophagus. D.—Stomach.

dilatation of the oesophagus by assiduous self-bouginage, after operation. This we now advise. Moreover, when there is a short incomplete stricture we wait at least 6 months before performing an anastomosis below it. By this measure it is more certain that the upper lesion is not progressive.

The problem of redundancy with consequent possibility

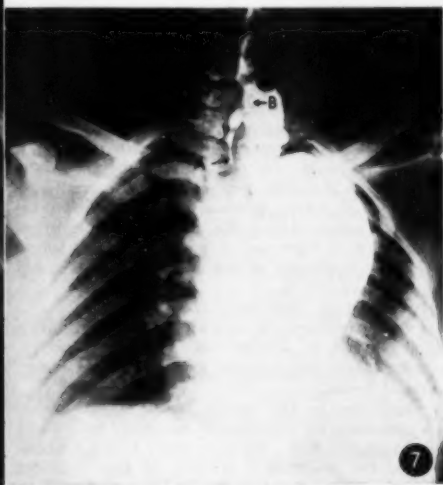


Fig. 7. Case G. N. Barium swallow showing oesophago-gastrostomy in the neck.
A.—Strictured oesophagus.
B.—Stoma.
C.—Indentation made by subclavian artery and brachial plexus.

Aside from the complications and hazards which it has in common with all major abdomino-thoracic surgery, there are many points of technique which are worthy of discussion.

In the early stages of our experience, using predominantly a technique based on that of Ivor Lewis, we met two main complications, viz. stricture formation at or above the site of anastomosis and stagnation of secretions in the intra-thoracic stomach due to redundancy.

Stricture formation at the anastomosis can be prevented by adopting an inverted T-incision in the oesophagus and making a big stoma with careful anastomosis and by ensuring that the anastomosis is performed into an area of healthy oesophagus. Any doubt on this score should at once prompt the surgeon to go higher if necessary into the neck, to find oesophageal tissues which do not show evidence of sub-epithelial fibrosis before performing his anastomosis. In the case of I. M. the operation was performed through a fibrosed segment. The choice was wrong and a cervical anastomosis should have been done.

Reactivation of scar tissue with progressive stenosis of the oesophagus can occur above the anastomosis (Case M. H.). In order to prevent this complication it is important to localize 'inert segments' of oesophagus accurately and, if an anastomosis is made below this site, to maintain

of ulceration in the stomach and haematemesis is one not easily solved if one uses a right-sided thoracotomy. It is always difficult to decide previously the amount of stomach it is necessary to mobilize at laparotomy to provide anastomosis without tension. In practice complete skeletonization with the maximum mobility must be performed lest the anastomosis need to be very high. Usually redundancy results. Moreover with extensive mobilization the blood supply to the stomach is always maximally compromised. Torsion occurs by the displacement of the greater curvature of the stomach, when transposed into the chest, from left to right (Fig. 2). The final argument one may employ against the right-sided thoracotomy subsequent to and divorced from the laparotomy is that it may prove completely unnecessary, since the whole length of the thoracic oesophagus may be unsuitable for anastomosis and the operation eventually have to be performed in the neck. Barium studies are not always reliable evidence of the most favourable site for anastomosis. It is, of course, obvious that in the case of carcinomatous strictures of the oesophagus there is a big chance that, mobilization of the stomach having been completed, thoracotomy may then prove the lesion inoperable.

In its favour is the fact that dissection of a malignant growth at the level of the aorta is easier from the right

side, and is less liable to unpleasant surprises owing to the much better view of the under surface of the aorta and the tracheal bifurcation.

The left-sided thoraco-abdominal incision with division of the diaphragm has the advantage of making mobilization of the stomach an easy matter and, if the stricture is not too high, the anastomosis may be made through the same incision. There is little to gain, however, by rib resection or rib division and a second intercostal incision is less mutilating to facilitate a high intrathoracic anastomosis.

When there is a very high anastomosis to be performed, the advantages of combined synchronous cervical and abdomino-thoracic approaches are hard to gainsay. Speed is not a primary consideration in this surgery, but there is no doubt that any operation which takes more than 3 hours carries a heavy risk and every effort should be made to reduce its duration even more.

The selection of suture material for the anastomosis seems relatively unimportant. We usually use interrupted silk sutures, but even these do not guarantee a safe suture line where the movements of deglutition throw repeated strains on the anastomosis.

Probably the most important factor contributing to leakage at the anastomosis is suture under tension. With no tension, 2 layers of sutures well placed are enough, together with a few hitching the stomach to the pleura or the cervical fascia.

There need never be any tension at the suture line in a primary operation, for the stomach can easily be brought up to the pharyngeal wall. We have never found it necessary to excise the oesophagus in order to gain sufficient length of stomach, in this agreeing with Tanner. Nor have we found it necessary to excise either a portion of the first rib or the clavicle or both in order to bring the stomach into the neck.

Anastomoses above the cricopharyngeus and involving the hypo-pharynx produce only temporary difficulty in deglutition. In our experience spill-over into the larynx has never lasted more than 4 days (Fig. 6).

Very often a well-planned gastrostomy may be left undisturbed when a high intrathoracic anastomosis is per-

formed (Case Mrs. D. K.), but only, of course, when the left thoraco-abdominal incision is in use and frequent trial approximations can be made during mobilization of the stomach.

A well-planned gastrostomy is low in the stomach but high in the abdomen.

We feel that a preliminary gastrostomy is essential in children and always preferable to a jejunostomy. Once it has been decided that oesophago-gastric anastomosis is necessary, gastrostomy should be performed. There is never any urgency about the major procedure. We have waited for 6 months or more, feeding through the gastrostomy, for a patient to reach the ideal general condition for operation.

SUMMARY

1. A brief survey of existing techniques of high oesophago-gastric anastomosis and their histories has been given.

2. Experience in treating cicatricial strictures of the oesophagus by high oesophago-gastric anastomosis is discussed.

3. Suggestions are made for avoiding the commoner complications of the operations.

4. A preference for the left-sided thoraco-abdominal incision for mobilization of the stomach plus a higher intercostal or cervical incision for the anastomosis is stated.

It is our pleasant duty to thank Messrs. D. C. Devitt, G. Hochschild, M. Kramer, J. Nicholson, F. W. Roberts and J. Rosenberg and to pay tribute to their skilled anaesthetic technique without which the material for this paper could not have been assembled.

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NUTRITION OF THE AGED

ENDOCRINE AND NUTRITIONAL CONSIDERATIONS

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The nutrition of the aged has been seriously neglected. Good nutrition has generally been considered indispensable for 'growth' and high activity; the man over 60 does not 'grow' any more and at his leisure can look after himself. Little or no provision is being made for his needs in Tables for daily dietary allowances. Geriatrics has not yet assumed major importance in the practice of medicine.

Many signs and symptoms of the aged are considered senile. The question arises how far these senile changes can be prevented or treated with proper nutrition, in order that the aged groups can still be productive and not be a

burden on the community, which they have served so well.

The metabolism of the aged is different from that of the child, or the adult before his climacterium. The tendency is to change from an anabolic or neutral to a catabolic state. Such a state would actually demand better nutrition in all aspects, except calories. After all the stresses and strains of life (and neglected nutrition), physical activity is reduced and thus also calorie expenditure. In order to appreciate this altered metabolism, we shall have to consider the change with age in the endocrine

metabolism or equilibrium. The close relationship between nutrition and the endocrines is recognized in medicine to-day; use is being made of the anabolic function of hormones such as the growth hormone, testosterone, methyl-androstenediol; functional uterine bleeding is not being treated with hormones only any more, but remarkably well also with proper nutrition.

With age the chief change occurs in the steroid groups, hormones produced by the suprarenal cortex and the gonads, which help to regulate body metabolism, in conjunction with the thyroid, suprarenal medulla, autonomic nerves, pancreas, pituitary and others. Several types of such steroid hormones are being produced.¹⁷ The desoxycorticosterone series or the mineralo-corticoids, which help to retain salt and water, are of first and vital importance. These hormones help to prevent dehydration in Addison's or Simmonds' disease. The groups of direct nutritive importance are the 'S' (sugar) and 'N' (nitrogen) hormone groups of Albright. In the 'S' hormone group are included steroids such as Cortisone (11-dehydro-17-hydroxy-corticosterone, or Compound E of Kendall) and 17-hydroxy-corticosterone (Kendall F). These hormones affect gluconeogenesis; an overproduction would lead to diabetes, osteoporosis, muscular weakness, atrophy of the skin, haemorrhagic tendencies with easy bruising and other phenomena which are associated with Cushing's disease (pituitary basophilism). These 'S' hormones are representative of the 11-oxygenated steroids (reducing lipids or glucocorticoids), the C_{21} series. Cortisone in sufficient quantities may produce a negative nitrogen balance, with increased urinary nitrogen.

The 'N' or nitrogen retention group is composed of steroids with androgenic, oestrogenic and progestational properties. Because of the close parallelism between the excretion values of androgens and 17-ketosteroids, values of the latter are used to diagnose the 'N' hormone state. It must, however, be remembered that all androgens are not 17-ketosteroids and all 17-ketosteroids are not androgens. Of the different oestrogen fractions, oestradiol, oestrone and oestriol, only oestrone is a 17-ketosteroid and is excreted as such. Oestradiol (dihydroxyoestrin) can, however, be converted to oestrone (ketohydroxy-oestrin), and the latter again to oestradiol; both can be transformed into oestriol, the trihydroxyoestrin, which is excreted as such. Adrenocorticotrophin (ACTH) chiefly stimulates the secretion of the 'S' hormones, whereas the luteinizing hormone (LH) may be held responsible for the production of the 'N' hormones. In the adrenogenital syndrome with pubertas praecox the 'N' hormones dominate; such children grow faster than do normal children, but due to early closure of the epiphyses, end up by being normal in height or slightly short. The 'S' and 'N' hormone groups have, therefore, opposite effects; in Addison's disease, a panhypo-adrenocorticism, there is a deficiency of both hormone groups and the skeleton remains virtually unaffected.

A fourth group of adrenal cortical hormones, related to Compound A of Kendall (11-dehydro-corticosterone), may possibly exchange much of the protein of the body for fat, with or without an increase in weight. In the presence of these compounds, the glucose derived from protein catabolism is converted into fat, but in their absence glucose is oxidized.¹⁸ Degenerative lesions, often with

complete necrosis, can be found in muscles in some hormone diseases. By the action of hormones, body weight can be increased without any increase in dietary intake.²¹ Weights of dogs on diets, primarily sufficient for maintenance only, were increased with growth hormone, alone or together with insulin. Protein was deposited and fat was burnt; the combustion of fat yields much more energy than that of protein. With increased food intake both fat and protein could be deposited. The increased appetite which is produced by the administration of growth hormone or testosterone, usually results in increased proportions of body protein rather than fat, in contrast to the action of ACTH or adrenal Compound A.

During the first few years of life, absolute levels for androgenic and glucocortico-steroids are low. In post-pubertal men both the testes and adrenal cortices produce steroids, which are being excreted and measured as 17-ketosteroids; in women these compounds are produced mainly if not entirely by the adrenal cortex. In boys the increase in urinary excretion continues up to about the seventeenth to eighteenth year of life, although figures within the normal adult range may be encountered after the age of 12 years. The increase in girls is similar to that in boys, which is rather difficult to explain in the presence of the testes. In adult women values are about two-thirds that of men. The climacteric values remain within the normal range, often moderately diminished, or moderately increased to compensate for the reduced gonadal function. Older men and women, however, show definite decreased 17-ketosteroid values.

For the reducing lipids, excretion values during life run approximately parallel in the two sexes, a little higher in men than in women. Our information for these corticoids is not yet as complete as for the sex hormones, but the consensus of opinion is that there is not such a definite reduction in the formation of neutral reducing lipids, as is the case for the anabolic steroids. Pincus, in a personal communication to Kirk,⁷ fails to find any definite reduction with age in the excretion of neutral lipids. Sprechler²² came to the conclusion that the absolute values are smallest in children, largest in adults of the age between 20 and 40 years, with a slight fall in old age. Expressed, however, in terms of body weight, the corticoid values are highest for children and lowest for the high age groups; per square metre of body surface area, the excretion of adults up to an age of 50 is a little higher than in children and after this age, the values are lower than in children. There is no relation between the excretion of 17-ketosteroids, body weight or body surface area.

The consensus of opinion also is that, with age, the adrenal cortex retains its ability to secrete hormones of the 11- and 17-steroid groups under ACTH stimulation. Pincus²³ applied 3 other tests of acute stress, the pursuit metre, glucose tolerance and target ball frustration test, and also feels that the adrenal response in old persons differs very little from that of young adults. It seems, however, that adrenaline produces a significantly greater eosinophil depression in young men than in the aged.²⁷ It should be remembered that adrenaline is a relatively mild stimulus, and dependent also for its action on an intact hypothalamus-pituitary mechanism. With old age the responsiveness of the nervous system is reduced.

It seems generally accepted to-day that the corticoids

(gluco-) and 17-ketosteroids are secreted independently of each other. They originate in the adrenal cortex from two separate functions, which are developed at a different period of life. As early as 1948, Pincus, Romanoff and Carlo,²¹ working on the excretion rhythm of these hormones, already concluded that the factors evoking urinary 17-ketosteroid increase or decrease, are not the same as those evoking neutral reducing lipid change, an implication that the adrenal cortex may secrete 17-ketosteroid precursors independent of reducing lipid precursors. The production (and excretion) of corticoids seem to be related to the metabolic rate of the body; and, as already mentioned above, of great nutritional significance to us is the fact that glucocorticoid production does not fall to the same low level in old age as the production of 17-ketosteroids. Such a change favours catabolism, and not anabolism, which predominates in the younger groups.

Kirk⁷ draws our attention to the interesting finding of the Pincus group that oestrogen excretion in men tends to remain unchanged with advancing years, in contrast to the sharp fall that occurs in women at menopause. This results in a change of the androgen: oestrogen ratio. The oestrogens thus obtain a relative predominance over the androgens in men. Such a change can only provoke feminization, and can explain in part the development of gynaecomastia in elderly men, or the tendency to develop prostatic hypertrophy, with advancing years. It must be remembered that with certain types of malnutrition (not under-nutrition), oestrogens are not being catabolized by the liver as fast as the androgens are being broken down. Such a state would provoke hyper-oestrogenism in men not properly fed, and would help to explain why feminization and gynaecomastia occur in some, but not all men. The steep decline of oestrogens in women and of androgens in men, coincides with the marked involution of the ovaries and testes, respectively, at this stage of life. This atrophy seems not to be attributed to pituitary gonadotrophic deficiency, but must undoubtedly be referred to the regressive changes, which occur primarily in the gonads themselves. Increased FSH values actually serve as indices of menopausal changes. The alleviation with oestrogens of the hot flushes, mental depression, nervousness, tiredness, etc., at the menopause is well known.

Decreased steroid hormone values may be observed in a wide range of debilitating diseases such as chronic illnesses of all kinds, during the course of acute illnesses, in hypothyroidism, anaemias, anorexia nervosa, malignancy outside the endocrine organs, generally in hepatic disease, diabetes of long standing, and malnutrition.¹⁷ Lowered metabolism generally accounts for the lowered values, or it may be a reflection of the exhaustion stage of the adaptation syndrome. Lowered dietary intake may ultimately interfere with the production of all hormones, because building stones for the production of pituitary trophic hormones, which are protein compounds, become deficient (a state to be compared with anorexia nervosa, or Simmonds' disease). This brings us to the aspect of nutrition of the aged. Not much progress has yet been made in finding the causes of arteriosclerosis, heart disease, diabetes, arthritis, premature ageing, mental disorders, etc., in the aged. In part these disorders may at least be associated with faulty nutrition. Ignorance of nutritive values, poor facilities for the preparation of food, living alone,

mental deterioration, low incomes, physical handicaps such as poor teeth and lack of hydrochloric acid may all contribute to the state of the aged.

Because a state of catabolism dominates the metabolic picture, a great physiological demand for foods of high nutritive quality can be predicted for the higher aged groups. The quality of the diet as a whole should be considered, and not only a few vitamins or minerals, nor should we be concerned only about the nutrition of a single part of the body, e.g. the hair or skin. It is not enough to survive into the years 60-80; these should be years of health and enjoyment, physical and mental vigour and productivity. In some cases we can blame heredity. We do not expect nutrition to change the genes, but we must remember that genes act like enzymes, and that with enzyme disturbances, as will occur with nutrient deficiencies, malformations such as microphthalmos, cleft palate, brachygnathia and the like, that are usually associated with inheritance, can be produced. Heredity and nutrition are, therefore, not wholly independent factors.

As far as the minerals are concerned, calcium seems to be of first importance. The seriousness of broken bones in older people has long been recognized; but only recently the importance of calcium in the diet has been noted. Low dietary intake may be an important cause,²² but with the high phosphorus and low calcium contents of most of the foodstuffs of plant origin, together with the lack of gonadal hormones in old age, disturbed absorption may be an important contributory factor. Gonadal hormones enhance the absorption of calcium; especially during pregnancy these hormones play a vital part in combating calcium deficiency. The reduction of gonadal hormones at the menopause may, therefore, seriously impede the absorption of calcium. Foods such as cocoas, which contain moderate amounts of oxalates that may produce calcium deficiency through the formation of insoluble calcium salts, should be restricted in cases of low dietary intakes.

Bones do not consist of minerals only. Without the protein matrix, the mineral salts cannot be deposited in bone. With excess of gluco-corticoids and increased gluconeogenesis, reduction in the anabolic rate may result in osteoporosis. In old age this may be superimposed on an existing state of osteomalacia. The result will be weak bones that will easily break.

The poor condition, or lack, of teeth may be important factors modifying the food habits of older people. Erosion of teeth from highly acid beverages may prove to be as important as caries of other origin.

The outcome of the excessive use of sodium chloride by modern man, can only be predicted. The association of sodium chloride with hypertension at present seems very speculative, but worth investigation. Other minerals, except iodine, may prove to be of less practical importance in dietary considerations, for foodstuffs of plant origin are fairly rich in minerals such as iron, phosphorus and other trace elements. The common use of plant materials with their high iron contents may, in part, explain the iron deposition in haemachromatosis. The use of iodized salts is long overdue.²³

The specific role played by fat in human nutrition is not yet fully settled. Arteriosclerosis seems to be associated with overweight, which results from excessive intake

of calories. Lowered basal metabolism may aggravate conditions, but basal metabolism may not be necessarily lowered in old age. Life insurance companies recognize the deleterious effect of overweight. It seems important to reduce the fat and carbohydrate intake as life advances, especially when physical activity is also decreased, but attention should be given to the essential fatty acids. These nutrients may be important, especially to keep the skin healthy. Fats are indispensable where high calorie intakes are demanded.

A calorie intake of 2000 and 2400 may be advisable for women and men, respectively. These are the recommendations for adult sedentary women and men, by the National Research Council¹² and it can be adhered to over an extended period of time; body weight will be maintained at a level most conducive to well-being. Cheap carbohydrate foods may restrict the use of expensive proteins for calorie purposes. In this respect carbohydrates (and fats) can spare much protein. Carbohydrates possibly have a specific inhibitory action on the deaminases of the body, but this action would only come into play when carbohydrates and proteins are simultaneously ingested.² Physical activity should not be discouraged; as a means of relaxation and recreation, exercises serve a valuable purpose and also burn up extra calories to combat overweight. Modification of accustomed dietary patterns thus becomes unnecessary, and so also the fear that essential nutrients will be missed.

As for the vitamins, there is a great need for both basic and applied research. A definite correlation has been established between vitamin A intake and the life span.¹⁹ Their experimental animals lived longer on diets supplemented with vitamin A. Supplements of vitamin A and essential fatty acids (in margarine), may help to keep the senile skin and other organs healthy.

B vitamins are generally associated with good quality proteins, such as meat, fish, eggs, cheese and milk, and with the emphasis in our diets on plant proteins, B-vitamin deficiencies seem not to be excluded in the aged. With high carbohydrate intakes, higher demands are in addition to be made on the B vitamins, such as thiamine. Deficiency of ascorbic acid can be anticipated.²³ Extra vitamin C may prove to be of indispensable value in maintaining suprarenal function in order to fortify the body against the stresses and strains of modern life (adaptation syndrome). Except in special cases, vitamin D should not be of much importance in South Africa with our excessive ultra-violet irradiation.

A lack of good quality proteins and their associated B vitamins, may constitute the major problem in South Africa, and possibly also in other parts of the world. Kountz *et al.*⁹ found that 40% of their 27 elderly patients were in negative nitrogen balance. Daily allowances of 1.0 to 1.2 gm. of protein per kg. of body weight proved to be insufficient in some cases, or as much as 2 gm. per kg. per day were insufficient to maintain nitrogen balance. Poor food habits, incomplete digestion and absorption as well as metabolic changes in the aged, are held responsible. Pyke and co-workers²³ set the protein of old women at the low level of 42 gm. daily, and found that a fifth of the women they studied living at home or in almshouses, did not receive this amount. The men all exceeded their estimated requirement of 54 gm. daily. Other authorities,

especially those in America, set the protein needs at 96 to 110 gm., or at least at 1-1.4 gm. of protein per kg. of body weight, with added amounts in times of stress.²² Lowered basal metabolism may protect the mechanism, but proper nutrition should maintain functional activity of endocrine or other organs, and thus maintain metabolism and vitality.

With starvation, especially livers but also the other organs, lose their proteins quite rapidly. Together with the proteins the enzymes are lost, which are associated with the proteins.¹¹ Loss of enzymes could not be attributed to decreased available prosthetic groups or enzyme activators, nor to accumulation of enzyme inhibitors, but Miller could only hold a loss of enzyme protein itself responsible. With re-alimentation both enzyme activity and protein levels were restored. Proteins, therefore, must not only be considered in terms of body synthesis, but also in terms of enzyme formation (apo-enzymes).

Tissues of the body are constantly being broken down, resynthesized and remodelled, in the young as well as in the aged. Growth, therefore, never ceases. It has been calculated that there is complete regeneration or turnover of body proteins every 90 days. Virtually all the body proteins are more or less labile, being in a constant state of flux. Location rather than composition seems to be the determining factor; during fasting the liver loses its protein very quickly; then come the intestinal tract, the kidneys, blood and heart, the skeletal muscles, skin and bone. More than half of the proteins of the liver and intestinal mucosae is being broken down and resynthesized in the short period of 10 days.²³ Active resynthesis occurs even during periods of starvation, and breakdown of protein in one organ may be associated with synthesis in others. Also antibody proteins induced by active immunity undergo continual breakdown and resynthesis; the half-lives of these and other plasma proteins are estimated to be about 2 weeks (isotope procedure). Resynthesis goes on very fast. Healthy dogs under optimum conditions are capable of regenerating as much as 90% of their total plasma proteins weekly. With depletion the dog can produce daily over 1 gm. of plasma proteins per kg. of body weight and about 1 gm. of haemoglobin.²⁴

In children, adults and in old age, there is thus continual dynamic exchanges between tissue proteins, intracellularly and extracellularly. Catabolic products can be used in the process of resynthesis, but these will not be sufficient, and proteins will have to be ingested to make up for losses and for remodelling of existing structures. As is the case with carbohydrates, proteins cannot be stored in the body to any large extent, and must be ingested every day, or at least at short intervals. Osteoporosis which is defined by Albright¹ as anti-anabolic rather than catabolic (normal alkaline phosphatase), may therefore be the rule when catabolism dominates the metabolic equilibrium. Adequate good quality proteins, in conjunction with anabolic hormones, such as the growth hormone, 'N' hormones and insulin may be the choice of therapy. Oestrogens, in addition, act as stimulators of the osteoblasts.

With a world shortage of good quality proteins such as animal proteins, the enrichment of basic foodstuffs such as maize and wheat has become a matter of great urgency.^{13, 16} Animal proteins, such as properly processed

fish meal and milk products, will admirably supplement amino acid deficiencies such as lysine and tryptophane, and vitamin and mineral deficiencies of our cereals. Food yeast produced from by-products of the sugar industry, soya beans, peanuts, peas and other beans, foodstuffs that are relatively rich in those nutrients which are lacking in maize and wheat, can also be used to improve the nutritive quality of these cereals. The sulphur-containing amino acids of these products are low, but fortunately maize and wheat contain relatively large quantities. Since bread and porridge occupy a place of special importance in our diets, we suggest that the following ingredients should be added to our meals¹⁴:

- 3% butter-milk solids;
- 1% non-fat dry milk solids;
- 2% soya bean meal;
- 2% ground nut meal;
- 1% food yeast;
- 0.5% calcium carbonate.

These supplements will increase the nutritive quality of our meals considerably. With higher quantities of milk solids, the calcium carbonate can be left out. The cost of such a mixture may at present be considered too high, but our community can be educated to invest its money in healthy foods. In America enriched breads are sold to the public, and contain as much as 6% skimmed milk solids and 6% of high-fat soy flour.^{10,12} In the mental hospitals of New York state, 90,000 patients are given bread that contains as much as 8% non-fat dry milk solids and 6% high-fat soy flour. The Americans insist upon a soy flour that contains its natural fat level. Vos²⁰ believes that such fat would improve the texture, and would make the use of other fats unnecessary. In baking experiments with different mixtures, a technological difficulty was encountered to produce bread that contains food yeast; she believes, however, that such difficulties may be resolved, and would at any rate not be met in porridge.

Constipation has been considered a common symptom of elderly persons. Bulk-formers for proper functioning of the intestines, therefore, need special attention in the nutrition of the aged.¹¹ For proper defaecation it is of primary importance that throughout life the act should be performed regularly. With our present mode of living, it is conceivable that little time is allowed for this vital act, and failure to acquire the habit of clearing the bowels regularly at some definite time each day, is an important cause of constipation. At first there may be no defect in the musculature and movements of the intestines, but with continued overloading, especially the lower segment of the colon soon becomes sluggish; atony and thinning of the muscular wall eventually result, with dyschezia. Because the evacuation reflex is carried via the sacro-pelvic parasympathetic nerves, and inhibition of these nerves subserving the rectum, sigmoid flexure and descending colon may occur, stimulation of motility by pharmacological means may ultimately become necessary; this, however, must be the last resort and Nature must at first be given an opportunity. Also in this respect our diet is of primary importance. A hypotonic state of the intestinal wall (musculature), may result from vitamin deficiencies, especially thiamine.

Portis and King²² feel that in persons under 50 there is usually a correlation between clinical manifestations and the laboratory as well as roentgenologic evidence, but

from their findings in aged person, they feel that one cannot prognosticate what the laboratory or X-ray evidence will be from the symptoms. Psychologically the aged differ from the younger groups, and neuropsychiatrists believe that the 2 paths the ageing organism takes in defending itself against the ageing process are regression and conservation. In the practice of medicine, special precautions should, therefore, be taken in psychotherapy, dietary treatment and medical management.

In surgery not only general health and the type of anaesthesia should be considered, but also the nutritional and hormonal status. Operation is a shock (stress) on the system, the severity depending upon the type of anaesthesia and operation. Protein systems may be broken down, apo-enzymes as well as co-enzymes, and in order to combat such changes during the resistant phase, nutritional and hormonal therapy may be indicated. Anabolic hormones such as testosterone, methylandrostenediol and growth hormones may assist the androcorticoids to combat catabolism. In conjunction with good nutrition, these hormones may favourably influence the post-operative course. Since catabolism tends to dominate at this age and also after stress in younger individuals, Cortisone is not indicated. For women methylandrostenediol is the androgen of choice, for it promotes protein anabolism similar to that of testosterone, with little androgenic activity.

It is logical to believe that administration of anabolic hormones will counteract catabolic hormones produced in the body to restore the metabolic equilibrium. Such treatment should reduce the nutrient requirements necessary to restore nitrogen balance. The general feeling, however, is to reserve hormone therapy for periods of stress, and not to use hormones to supplement dietary intake in unstressed individuals. The rejuvenation effect of hormones on non-generative organs, such as the nasal mucosa and the skin, is well known.⁸ In old persons low non-ciliated epithelium may frequently replace the columnar ciliated epithelium of the nasal mucosa, and this can be reversed with oestrogen. The use of hormones in cosmetic practice becomes common practice. Goldzieher and co-workers³⁻⁵ could affect regenerative changes in the skin (dermis and epidermis) of senile men and women, not only with oestrogens such as *alpha*-oestradiol, *beta*-oestradiol and oestrone, but also with androgens such as testosterone, and methylandrostenediol. Nevertheless, adequate dietary intake should be the procedure to be given first choice. Proper nutrition should keep peripheral tissues sensitive enough to respond adequately to lowered hormone productions at old age. With lack of adequate nutrition, the vagina, eg. becomes insensitive and would not respond to oestrogen therapy.¹³

Sherman²⁵ justly believes that *nutritional extension of the adult life cycle does not mean longer periods of senility, but a longer period of prime*. The extent to which we can logically expect the prime of life to be extended by nutritionally guided food habits is greater the earlier in life this nutritional guidance begins. Nutritional improvement of life must begin before birth and then be continued throughout the life cycle. It would result in postponement of the ageing process.

Sherman believes that a higher health plane with lower death rates at all stages of the life cycle can be

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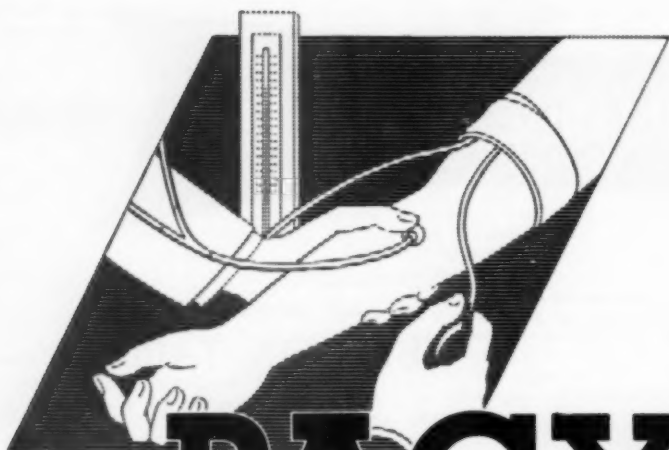
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reached with proper nutritional guidance. In no circumstance must the importance of growth-stimulating factors (such as vitamins) only be stressed. A growth rate above that which can be maintained by available building stones (amino acids and other nutrients), can only result in 'forced growth' (Sherman), which may become detrimental to health. Young rats on maize live several weeks, depending upon the starting weights, but with added B vitamins which stimulate growth, they may be killed in half the period.¹⁶ Subclinical vitamin deficiencies can be precipitated acutely with growth hormone. In the fortification of basic plant materials, attention should, therefore, be directed to all the nutrients, and not to the vitamins only.

With proper guidance present food supplies and potentialities can be used more advantageously for better nutritional status (nutriture), better and longer life histories, better health and a happier world, which is the object of civilization. With comprehensive and vigorous campaigns of soil conservation, by extending irrigation and with scientific farming, not only can the productivity of existing land be increased, but new land can be operated. More food of greater nutritive value can be produced, the cultivation of beans and peas can be encouraged, and emphasis in the farm animal population can be shifted from meat animals to milk cows, which yield much more to human nutrition in return for their pasturage, as is generally believed. Families can be advised in town and city to house a few fowls in their backyards (at the expense of a bed of flowers), in order that eggs of high nutritive value can be procured at reasonable cost, and to grow their own fruit, especially citrus, and vegetables, especially those that can be used uncooked. Palatable, nutritious, cheap (and harmless) cool drinks can be prepared from lemons by stirring 2 lb. of sugar into 4 pints of slightly heated juice. In order to preserve the vitamin C content as long as possible, this must be kept in a cool place. Fish can be trimmed at the coast to save space and weight. The accessories can be prepared into a meal for animal use, and the housewife inland receives her fish ready for cooking.

SUMMARY

Attention has been drawn to the lack of interest and knowledge of the nutrition of the aged.

Because the normal equilibrium between the anabolic effect of the 17-ketosteroids (androsteroids and oestrosteroids), and the catabolic effect of the 11-oxycorticosteroids is being impaired at old age, with a predominance of the 11-oxycorticosteroids, attempts should be made to restore the metabolic equilibrium by means of proper nutrition.

More of the essential nutrients may be required at old age, than is commonly believed.

Such nutritional extension of the adult life cycle would mean a longer period of prime. The earlier in life we start with nutritionally guided food patterns, the safer it will be.

Basic foods such as bread and porridge can be enriched to provide better nutrition.

Agriculture can be directed to produce nutritive foods, and nutritionists can guide the population to consume such foods. This will provide a healthier and happier community.

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ASSOCIATION NEWS : VERENIGINGSNUUS

CAPE WESTERN BRANCH: MEETING HELD ON 25 JULY 1952

The subject for the evening was a discussion on deaths under anaesthetics. Mr. A. H. Broeksmas, Q.C., who had been asked by the Bar Council to put the legal point of view was unfortunately unable to be present. Mr. H. Snitcher, Q.C., very kindly agreed to deputize for him.

The first speaker (Mr. R. Lane Forsyth) gave a résumé of the early days of anaesthetics, starting with the open method and tracing the advances which enabled better surgery to be

performed. Strangely enough, the death rate under anaesthesia still remained the same as 25 years ago, i.e. about one per thousand. There were always the bad risks who would take an anaesthetic badly, but who should not be denied the benefits of surgery. He discussed the various causes of death under anaesthesia: obstruction of air passages, blood loss and cardiac arrest. We were still searching for non-lethal anaesthetics ever since that first successful operation on Adam.

Dr. Fuller then spoke about the anaesthetists' point of view and went into the question of when and whether an anaesthetist should refuse to give an anaesthetic. His main difficulty lay in the demand of the law that a death under anaesthetic was an unnatural death and must be the subject of an inquiry. In these circumstances anaesthetists often felt that they were made to carry the burden of a death which should be a collective responsibility, if responsibility there were. At the Groote Schuur Hospital in 1,300 operations he stated that only 2 deaths could be attributed to the anaesthetic as such; all other cases were a combination of bad risk plus surgery, plus anaesthetic. All hospitals should have staff properly trained in major surgery and a staff equally properly trained in anaesthesia. Inexperienced or casual anaesthetists in the small hospitals were the cause of a relatively high death rate. Few people should do anaesthetics and equally few people should do major surgery. He ended by asking whether it was really necessary for a public inquiry in which, quite often, the anaesthetist was treated almost like a criminal.

Professor Turner, talking on the pathologists' experience, discussed the causes of death in pathological terms. He stated that in the past year in Cape Town 24 necropsies had been performed on anaesthetic deaths. The causes he divided into (1) those cases in which the cause of death was the disease or injury causing the operation and possibly hastened by the anaesthetic; (2) deaths due directly to the surgical procedure; (3) deaths due to the anaesthetic itself causing either respiratory or cardio-vascular arrest. Certain deaths occur from cardiac arrest under light anaesthetics and cannot be anticipated. He also mentioned such causes as cocaine excess, spinal anaesthetics causing sympathetic paralysis and status thymo-lymphaticus.

Necropsy findings, except for the surgical procedures, were not decisive and inference about the cause of death could be made only from the evidence of the inquest. From the legal aspect it was true that all deaths in which an anaesthetic was used were regarded as not natural; perhaps such deaths were better described as operative deaths rather than anaesthetic deaths. An amendment was necessary to Section 86 of the Medical, Dental and Pharmacy Act if we would have a change in the method of inquiry after such a death. The majority of deaths under anaesthesia are due to natural causes and not to the anaesthetic or operation. Undesirable publicity could be avoided while the inquiry was still of a public nature. Informal inquests were more satisfactory, and could be renewed by the Attorney-General who could take any action he wished.

The last and most interesting speaker was Mr. H. Snitcher, Q.C., who said straight away that this subject appeared to be of importance to the medical profession, but certainly did not

agitate the legal profession! Such a problem was approached by legal men from a point of view of a 'reasonable man' and presumably the medical profession was best able to give a definition of a 'reasonable man'. The maze of medical terminology tended to confuse the lay mind. The law laid down that no certificate of death could be given for deaths other than of natural causes and an inquest must be held on every cause of death from violence or other unnatural causes. In the Medical, Dental and Pharmacy Act of 1928, Section 86, it is specifically stated that any death in which an anaesthetic, local or general, is concerned should not be regarded as natural. The procedure in urban areas differed from that of the rural areas, where a Justice of the Peace makes a report to the Magistrate, who will hold an inquiry if he considers it necessary. If this procedure was applied to urban areas it would do away with the necessity of inquests in every case. However, it was important that in every such death a report should be made to some person or body competent to judge whether a public inquiry was necessary. An anaesthetist should not hesitate to undertake a poor operative risk. If death occurs he will not be held negligent if he applied the skill and diligence which may reasonably be expected from him.

In the discussion which followed Dr. Impey suggested that the Medical Council may approach the Government to ask for a change in the Act, but the Medical Association should first assure what it wanted. As far as he could remember there was no objection to Clause 86 at the time that the Act was passed.

Dr. Currie drew attention to the tragedy of the death of an otherwise healthy child which sometimes occurred under an anaesthetic for such minor procedures as circumcision.

Dr. Cloete brought up the point of the responsibility of a Medical Superintendent when consent was sought for an operation on a minor in cases of emergency. Dr. Fuller then mentioned the point of a patient giving consent after pre-medication with a drug when he might possibly be considered to be not in control of his faculties. Dr. Abelson inquired what the position was if a husband refused consent when a wife could and did consent on her own.

Mr. Snitcher replied to these questions to the satisfaction of the questioners. At the end a sinister note was introduced by a legal visitor, Mr. Levy, who stated in no uncertain terms that the question of negligence did not arise in criminal law, but only in civil law, that a death during anaesthesia was culpable homicide and that it only remained in each case to fix the degree of blame on the responsible persons! After this sad announcement the President considered it best to call a halt and the meeting adjourned for refreshments which had been provided in the Students' Hut next door.

PASSING EVENTS

Mr. Brian Murlless, F.R.C.S., of Durban, left by air for the United Kingdom in mid-August. He will be back on 1 October.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH

At the Quarterly Meeting of the College held on Tuesday, 22 July 1952, the President, Dr. W. A. Alexander, in the Chair, the following were elected Fellows:

Daw Yin May, M.R.C.S. (Eng.), L.R.C.P. (Lond.), F.R.C.S.E.
Maung Shwe Zan, M.B. (Edin.).
William John Gibson Barrie, M.B.E., M.D. (Edin.).
James Wright Rae, M.B. (Edin.).

The following were elected Members of the College:

Anthony Flavian Stanislaus Perera, L.M.S. (Ceylon).
Mohd Ayub Khan, M.B. (Punjab).
Walter Sneddon Watson, M.D. (Edin.).
William Jobathan Abel, M.B. (Edin.).
Nimai Krishna Mitra, M.B. (Calcutta).
Andrew Bogdan, M.D. (Lond.).
Geoffrey Hugh Templeman, M.B.E., M.D. (Leeds).
Arthur Jarrett, M.B. (Birm.).
Matthew Walter John Boyd, M.D. (Belf.).

Newton Symonds Chalk, M.B. (Queensland).
Pathiyil Karthiyayani Krishnankutti, M.D. (Madras).
Sureshwar Prasad Jha, M.D. (Patna).
John Buller Cromie, M.D. (Belf.).
Henry Gemmell Morgan, M.B. St. And.
Charles Desmond Ross Pengelly, M.B. (Bristol).
Harry Altman, M.B. (Witwatersrand).
Eveline Patricia Forbes, M.B. (Cape Town).
Leo Schamroth, M.B. (Witwatersrand).
Lionel Hugh Mofflin, M.B. (Adelaide).
Peter George Aungie, M.B. (Edin.).
Janet Latta Picken Hunter, M.B. (Glasg.).

FIRST INTERNATIONAL CONGRESS ON MEDICAL LIBRARIANSHIP

This Congress will be held in London during the week commencing 20 July 1953 under the Presidency of Sir Cecil Wakeley, K.B.E., C.B., President of the Royal College of Surgeons of England. The programme will include formal sessions for the reading and discussion of papers, visits to medical libraries and social functions. In connexion with the Congress there will be exhibitions of medical books and periodicals and library equipment. The Congress Centre will be at University College, Gower Street, London, W.C.1.

The following main themes have been suggested as topics for discussion: *Education and Training for Medical Librarianship; History and Medical Libraries in Various Countries; Organization of New Medical Libraries; Reference and Information Work; International Co-operation.*

Further information can be obtained from Mr. C. C. Barnard and Mr. R. J. Bishop, Joint Honorary Secretaries of the First International Congress on Medical Librarianship, c/o London School of Hygiene and Tropical Medicine, Keppel Street, London, W.C.1.

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IN MEMORIAM

DR. MATHEW THOMAS ASCOUGH, M.R.C.S. (ENG.), L.R.C.P. (LOND.), D.P.H. (VICT.)

On 10 June 1952 Dr. M. T. Ascoug died suddenly and peacefully after a short illness, at the age of 75 years. He was born in Hyde, Cheshire, England, and received his education at Gildersome College, Yorkshire. He completed his medical studies at Manchester University, where he graduated. He was in general practice at Romiley, Cheshire, from 1909 to July 1949.



Dr. M. T. Ascoug

He served in 3 wars with distinction. As a medical student from 1901-1902 he was attached to the Medical Corps South Africa during the South African War.

During World War I he served in France and later on the hospital ship *Braemar Castle* bringing wounded from Murmansk, Russia. He was taken prisoner-of-war, and for distinguished duty and bravery he was

awarded the M.C. and also mentioned in despatches.

REVIEWS OF BOOKS

LUNG ABSCESS

Lung Abscess. By R. C. Brock, M.S., F.R.C.S., F.A.C.S. (Pp. 197 + vi, with 60 figures. 35s.) Oxford, England: Blackwell Scientific Publications, 1952.

Contents: 1. Broncho-Pulmonary Segmental Anatomy. 2. The Pathology of Lung Abscess. 3. Anaerobic (Foetid) Lung Abscess. 4. Aerobic (Non-Foetid) Lung Abscess. 5. Staphylococcal Lung Abscess. 6. Friedländer Lung Abscess. 7. The Aetiology of Lung Abscess. 8. Lung Abscess and Bronchial Carcinoma. 9. The Treatment of Lung Abscess. References. Index.

This volume on *Lung Abscess* is a welcome addition to the literature on chest diseases. Since the introduction of the antibiotics, the treatment of this condition has been separated into medical and surgical phases. The author steadily develops his view that there can be no such clear division. He points out that there is a tendency to treat lung abscess on non-surgical lines and for patients to be discharged from hospital with signs of an unhealed cavity. Eventually these same patients return to hospital with severe complications, usually requiring pulmonary resection. An abscess in the lung is no different from an abscess elsewhere and where pus has formed surgical drainage will often save irreversible damage.

Much of this volume is culled from essays which appeared in the *Guy's Hospital Reports* between 1945 and 1948. The book describes the anatomy of the lung, the pathological changes which occur with different types of lung abscess and the treatment. Of the specific types of abscess described, those due to Friedländer's bacillus and the staphylococcus require special mention. The importance of lung abscess is emphasized by the statistical analyses which show the unhappy fact that expectant treatment has failed in about 80% of cases.

H. A. Sandiford, Medical Director of the Bureau, at B.M.A. House, Tavistock Square, London, W.C.1, so that all the facilities of the Bureau will be placed at their disposal.

Medical practitioners will find the Bureau helpful in arranging accommodation as well as post-graduate courses of study.

RAILWAY MEDICAL OFFICERS GROUP

The Annual General Meeting of the Railway Medical Officers Group to be held at Johannesburg during Congress week, will take place on Wednesday, 24 September at 2.30 p.m.

The Executive Committee Meeting of the Group will be held on Thursday 25 September at 2 p.m.

In World War II he was the Medical Officer in charge of a Mobile First Aid Unit, during which period he found time to manage a large civil practice.

In 1912 he married Miss Doris Bailey of King William's Town and Whitby Bay, Northumberland, England, by whom he had one son.

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8 August 1952.

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Dr. Fuller then spoke about the anaesthetists' point of view and went into the question of when and whether an anaesthetist should refuse to give an anaesthetic. His main difficulty lay in the demand of the law that a death under anaesthetic was an unnatural death and must be the subject of an inquiry. In these circumstances anaesthetists often felt that they were made to carry the burden of a death which should be a collective responsibility, if responsibility there were. At the Groote Schuur Hospital in 1,300 operations he stated that only 2 deaths could be attributed to the anaesthetic as such; all other cases were a combination of bad risk plus surgery, plus anaesthetic. All hospitals should have staff properly trained in major surgery and a staff equally properly trained in anaesthesia. Inexperienced or casual anaesthetists in the small hospitals were the cause of a relatively high death rate. Few people should do anaesthetics and equally few people should do major surgery. He ended by asking whether it was really necessary for a public inquiry in which, quite often, the anaesthetist was treated almost like a criminal.

Professor Turner, talking on the pathologists' experience, discussed the causes of death in pathological terms. He stated that in the past year in Cape Town 24 necropsies had been performed on anaesthetic deaths. The causes he divided into (1) those cases in which the cause of death was the disease or injury causing the operation and possibly hastened by the anaesthetic; (2) deaths due directly to the surgical procedure; (3) deaths due to the anaesthetic itself causing either respiratory or cardio-vascular arrest. Certain deaths occur from cardiac arrest under light anaesthetics and cannot be anticipated. He also mentioned such causes as cocaine excess, spinal anaesthetics causing sympathetic paralysis and status thymo-lymphaticus.

Necropsy findings, except for the surgical procedures, were not decisive and inference about the cause of death could be made only from the evidence of the inquest. From the legal aspect it was true that all deaths in which an anaesthetic was used were regarded as not natural; perhaps such deaths were better described as operative deaths rather than anaesthetic deaths. An amendment was necessary to Section 86 of the Medical, Dental and Pharmacy Act if we would have a change in the method of inquiry after such a death. The majority of deaths under anaesthesia are due to natural causes and not to the anaesthetic or operation. Undesirable publicity could be avoided while the inquiry was still of a public nature. Informal inquests were more satisfactory, and could be renewed by the Attorney-General who could take any action he wished.

The last and most interesting speaker was Mr. H. Snitcher, Q.C., who said straight away that this subject appeared to be of importance to the medical profession, but certainly did not

agitate the legal profession! Such a problem was approached by legal men from a point of view of a 'reasonable man' and presumably the medical profession was best able to give a definition of a 'reasonable man'. The maze of medical terminology tended to confuse the lay mind. The law laid down that no certificate of death could be given for deaths other than of natural causes and an inquest must be held on every cause of death from violence or other unnatural causes. In the Medical, Dental and Pharmacy Act of 1928, Section 86, it is specifically stated that any death in which an anaesthetic, local or general, is concerned should not be regarded as natural. The procedure in urban areas differed from that of the rural areas, where a Justice of the Peace makes a report to the Magistrate, who will hold an inquiry if he considers it necessary. If this procedure was applied to urban areas it would do away with the necessity of inquests in every case. However, it was important that in every such death a report should be made to some person or body competent to judge whether a public inquiry was necessary. An anaesthetist should not hesitate to undertake a poor operative risk. If death occurs he will not be held negligent if he applied the skill and diligence which may reasonably be expected from him.

In the discussion which followed Dr. Impey suggested that the Medical Council may approach the Government to ask for a change in the Act, but the Medical Association should first assure what it wanted. As far as he could remember there was no objection to Clause 86 at the time that the Act was passed.

Dr. Currie drew attention to the tragedy of the death of an otherwise healthy child which sometimes occurred under an anaesthetic for such minor procedures as circumcision.

Dr. Cloete brought up the point of the responsibility of a Medical Superintendent when consent was sought for an operation on a minor in cases of emergency. Dr. Fuller then mentioned the point of a patient giving consent after pre-medication with a drug when he might possibly be considered to be not in control of his faculties. Dr. Abelson inquired what the position was if a husband refused consent when a wife could and did consent on her own.

Mr. Snitcher replied to these questions to the satisfaction of the questioners. At the end a sinister note was introduced by a legal visitor, Mr. Levy, who stated in no uncertain terms that the question of negligence did not arise in criminal law, but only in civil law, that a death during anaesthesia was culpable homicide and that it only remained in each case to fix the degree of blame on the responsible persons! After this sad announcement the President considered it best to call a halt and the meeting adjourned for refreshments which had been provided in the Students' Hut next door.

PASSING EVENTS

Mr. Brian Murless, F.R.C.S., of Durban, left by air for the United Kingdom in mid-August. He will be back on 1 October.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH

At the Quarterly Meeting of the College held on Tuesday, 22 July 1952, the President, Dr. W. A. Alexander, in the Chair, the following were elected Fellows:

Daw Yin May, M.R.C.S. (Eng.), L.R.C.P. (Lond.), F.R.C.S.E.

Maung Shwe Zan, M.B. (Edin.).

William John Gibson Barrie, M.B.E., M.D. (Edin.)

James Wright Rae, M.B. (Edin.).

The following were elected Members of the College:

Anthony Flavian Stanislaus Perera, L.M.S. (Ceylon).

Mohd Ayub Khan, M.B. (Punjab).

Walter Sneddon Watson, M.D. (Edin.).

William Jobathan Abel, M.B. (Edin.).

Nimai Krishna Mitra, M.B. (Calcutta).

Andrew Bogdan, M.D. (Lond.).

Geoffrey Hugh Templeman, M.B.E., M.D. (Leeds).

Arthur Jarrett, M.B. (Birm.).

Matthew Walter John Boyd, M.D. (Belf.).

Newton Symonds Chalk, M.B. (Queensland).

Pathiyil Karthiyayani Krishnankutti, M.D. (Madras).

Sureshwar Prasad Jha, M.D. (Patna).

John Buller Cromie, M.D. (Belf.).

Henry Gemmell Morgan, M.B. St. And.

Charles Desmond Ross Pengelly, M.B. (Bristol).

Harry Altman, M.B. (Witwatersrand).

Eveline Patricia Forbes, M.B. (Cape Town).

Leo Schamroth, M.B. (Witwatersrand).

Lionel Hugh Moffin, M.B. (Adelaide).

Peter George Aungie, M.B. (Edin.).

Janet Latta Picken Hunter, M.B. (Glasg.).

FIRST INTERNATIONAL CONGRESS ON MEDICAL LIBRARIANSHIP

This Congress will be held in London during the week commencing 20 July 1953 under the Presidency of Sir Cecil Wakeley, K.B.E., C.B., President of the Royal College of Surgeons of England. The programme will include formal sessions for the reading and discussion of papers, visits to medical libraries and social functions. In connexion with the Congress there will be exhibitions of medical books and periodicals and library equipment. The Congress Centre will be at University College, Gower Street, London, W.C.1.

The following main themes have been suggested as topics for discussion: *Education and Training for Medical Librarianship; History and Medical Libraries in Various Countries; Organization of New Medical Libraries; Reference and Information Work; International Co-operation.*

Further information can be obtained from Mr. C. C. Barnard and Mr. R. J. Bishop, Joint Honorary Secretaries of the First International Congress on Medical Librarianship, c/o London School of Hygiene and Tropical Medicine, Keppel Street, London, W.C.1.

EMPIRE MEDICAL ADVISORY BUREAU

South African medical practitioners who are thinking of visiting the United Kingdom should get into touch with Dr.

H. A. Sandiford, Medical Director of the Bureau, at B.M.A. House, Tavistock Square, London, W.C.1, so that all the facilities of the Bureau will be placed at their disposal.

Medical practitioners will find the Bureau helpful in arranging accommodation as well as post-graduate courses of study.

RAILWAY MEDICAL OFFICERS GROUP

The Annual General Meeting of the Railway Medical Officers Group to be held at Johannesburg during Congress week, will take place on Wednesday, 24 September at 2.30 p.m.

The Executive Committee Meeting of the Group will be held on Thursday 25 September at 2 p.m.

IN MEMORIAM

DR. MATHEW THOMAS ASCOUGH, M.R.C.S. (ENG.), L.R.C.P. (LOND.), D.P.H. (VICT.)

On 10 June 1952 Dr. M. T. Ascoug died suddenly and peacefully after a short illness, at the age of 75 years. He was born in Hyde, Cheshire, England, and received his education at Gildersome College, Yorkshire. He completed his medical studies at Manchester University, where he graduated. He was in general practice at Romiley, Cheshire, from 1909 to July 1949.



Dr. M. T. Ascoug

He served in 3 wars with distinction. As a medical student from 1901-1902 he was attached to the Medical Corps South Africa during the South African War.

During World War I he served in France and later on the hospital ship *Braemar* bringing wounded from Murmansk, Russia. He was taken prisoner-of-war, and for distinguished duty and bravery he was

awarded the M.C. and also mentioned in despatches.

In World War II he was the Medical Officer in charge of a Mobile First Aid Unit, during which period he found time to manage a large civil practice.

In 1912 he married Miss Doris Bailey of King William's Town and Whitley Bay, Northumberland, England, by whom he had one son.

On his retirement from active practice in 1949 he was presented with a gold watch and an illuminated address by his patients. He settled with his family in King William's Town where they opened up a general practice, both his wife and son being qualified practitioners. The urge to serve the sick made him decide to assist the family partnership whenever required. He was remarkably active even in retirement and found many interests to keep himself fully occupied.

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N. F. M.

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REVIEWS OF BOOKS

LUNG ABSCESS

Lung Abscess. By R. C. Brock, M.S., F.R.C.S., F.A.C.S. (Pp. 197 + vi, with 60 figures. 35s.) Oxford, England: Blackwell Scientific Publications, 1952.

Contents: 1. Broncho-Pulmonary Segmental Anatomy. 2. The Pathology of Lung Abscess. 3. Anaerobic (Foetid) Lung Abscess. 4. Aerobic (Non-Foetid) Lung Abscess. 5. Staphylococcal Lung Abscess. 6. Friedländer Lung Abscess. 7. The Aetiology of Lung Abscess. 8. Lung Abscess and Bronchial Carcinoma. 9. The Treatment of Lung Abscess. References. Index.

This volume on *Lung Abscess* is a welcome addition to the literature on chest diseases. Since the introduction of the antibiotics, the treatment of this condition has been separated into medical and surgical phases. The author steadily develops his view that there can be no such clear division. He points out that there is a tendency to treat lung abscess on non-surgical lines and for patients to be discharged from hospital with signs of an unhealed cavity. Eventually these same patients return to hospital with severe complications, usually requiring pulmonary resection. An abscess in the lung is no different from an abscess elsewhere and where pus has formed surgical drainage will often save irreversible damage.

Much of this volume is culled from essays which appeared in the *Guy's Hospital Reports* between 1945 and 1948. The book describes the anatomy of the lung, the pathological changes which occur with different types of lung abscess and the treatment. Of the specific types of abscess described, those due to Friedländer's bacillus and the staphylococcus require special mention. The importance of lung abscess is emphasized by the statistical analyses which show the unhappy fact that expectant treatment has failed in about 80% of cases.

The author states that there should be no contention for pride of place between medicine and surgery in the treatment of lung abscess. Both have their place, and provided the limitations and indications are clearly recognized and observed, there need be no invidious comparisons.

The book is well illustrated with radiographic reproductions and the inclusion of many case histories assists in making this a most useful addition to the current medical literature. It is well written and well produced.

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The series of articles in this book has been written by experts and treatment of the infections indicated in the list

of contents is presented concisely. Particularly valuable is the consideration given to the sulphonamides and to penicillin preparations (which cost shillings) since, in England, the expensive antibiotics aureomycin, terramycin, chloramphenicol (which cost pounds) are not so freely available as they are in America and South Africa.

The value of the sulphonamides, e.g. in meningococcal meningitis, in pneumococcal and streptococcal pneumonia, and in other infections, must not be forgotten.

This is an excellent little book which should be read by all who wish to get good results from chemotherapy.

MEDICAL PROGRESS 1952

The British Encyclopaedia of Medical Practice, Medical Progress 1952. Editor in Chief, The Lord Horder. (Pp. 319 + viii.) London: Butterworth & Co.

Contents: Part I—Critical Surveys. 1. Medicine. 2. Surgery. 3. Obstetrics and Gynaecology. 4. Industrial Medicine. 5. Progress in Pathology. 6. Rheumatology. 7. Antibiotics. 8. Blood Diseases. 9. Nutrition. 10. Ophthalmology. 11. Dermatology.

Part II—Abstracts. 12. Abortion—Vulva and Vagina, Diseases. Index.

This is the first volume supplementing the second edition of the *British Encyclopaedia of Medical Practice*, and it summarizes recent medical progress very admirably and concisely.

A departure from previous practice has been the elimination of a separate section on drugs, therapeutics being now fused with the other parts of the book and a small section on *Pharmacology and Therapeutics* taking its alphabetical place in the section entitled *Abstracts*. This is probably a great advantage from the point of view of the reader.

It is interesting that Cortisone and ACTH take, as would be expected, a prominent part in almost all parts of this *Progress* volume. The fact that there are limitations on the use of these potent hormones is beginning to be perceived, but their final evaluation is by no means complete.

All in all, this is a most admirable and readable survey of recent advances in the clinical field.

EAR, NOSE AND THROAT

Diseases of the Ear, Nose and Throat. By G. Portmann, M.D. (Pp. 728 + viii, with 666 figures. £7 10s. 0d.) London: Baillière, Tindall & Cox.

Contents: Part I. Auricular Apparatus. 1. Anatomy. 2. Physiology. 3. Indirect Examination of the Auricular Apparatus. 4. Direct Examination of the Auricular Apparatus.

Part II. Nasal Cavities. 5. Anatomy. 6. Physiology. 7. Indirect Examination of the Nasal Cavities. 8. Direct Examination of the Nasal and Naso-Pharyngeal Cavities.

Part III. Mouth and Pharynx. 9. Anatomy. 10. Physiology. 11. Indirect Examination of the Mouth and Pharyngeal Cavities. 12. Direct Examination of the Mouth and Pharyngeal Cavities.

Part IV. Larynx, Trachea, Bronchi. 13. Anatomy. 14. Physiology. 15. Indirect Examination of the Larynx, Trachea and Bronchi. 16. Direct Examination of the Larynx, Trachea and Bronchi.

Part V. Esophagus. 17. Anatomy. 18. Physiology. 19. Indirect Examination of the Esophagus. 20. Direct Examination of the Esophagus.

Part VI. Laboratory Methods in Otolaryngology. 21. Tests to be done on the Diseased Organ or its Pathological Products. 22. Tests of a General Nature.

The author of this book is the Professor of Oto-rhino-laryngology at the University of Bordeaux, the translation

being done by two Americans. It would be difficult to find a more meticulous and exhaustive treatise on the subject. In fact, the exceptional attention to detail in every part of the book produces a certain amount of rather tedious repetition. However, this stricture apart, one cannot but admire the painstaking effort that has gone into writing this textbook, which would appeal more to the specialist than the student or general practitioner.

The section on radiological diagnosis of infections of the sinuses, throat and ear is particularly enlightening and many points are elucidated which in the average E.N.T. textbook are merely mentioned. Very well-annotated pictures and diagrams are used to illustrate every clinical manoeuvre or test and there is no doubt that the author fully discusses every possible type of investigation that can be carried out in this specialty, even going to the length of describing tests, such as auscultation of the paranasal sinuses, which he admits are outdated and for practical purposes useless.

Apart from these occasional flights into clinical cloud-cuckoo-land, the book can thoroughly be recommended to any requiring an intimate knowledge of the specialty.

TROPICAL MEDICINE

Synopsis of Tropical Medicine (Second Edition). By Sir Philip H. Manson-Bahr. (Pp. 248 + xiii, with 7 plates, 2nd ed. 15s.) London: Cassell & Co. 1952.

Contents: 1. Protozoal Diseases. 2. Spirochaetal Diseases. 3. Rickettsial Diseases. 4. Bacterial Diseases. 5. Virus Diseases. 6. Fungal Diseases. 7. Nutritional Diseases. 8. Climatic Diseases. 9. Miscellaneous Group. 10. Vegetable Poisons. 11. Animal Poisons. 12. Metazoal Diseases: Arthropod, Fly and Leish Infections. 13. Metazoal Diseases: Helminth Infections. 14. Metazoal Diseases: Nematode Infections. 15. Metazoal Diseases: Cestodes. 16. Laboratory Methods.

The author has adopted the brief 'note form' of presenting the subject matter and has thus included a great deal of information in a volume of 248 pages. The careful selection of type for headings and sub-headings facilitates perusal of the contents.

The book will appeal primarily to medical students, post-graduate students in tropical medicine and to general practitioners, as most of the salient facts are provided together with a few diagrams. No bibliography is given and the specialist will need to refer to more comprehensive works for additional information.

In the diagnosis of the virus diseases the complement fixation test (Bedson) is recommended in psittacosis and is considered unsatisfactory in lymphogranuloma inguinale. The test is not mentioned in the diagnosis of the other virus diseases.

In the section on the rickettsial diseases the author refers to the agglutination tests (*B. proteus* OX19, OX2 and OXK) as the differentiating feature and omits the complement fixation tests in all except Q-fever and rickettsial pox. In the Table on p. 66 the dog is given as the vertebrate reservoir of South and East African tick typhus.

In relation to typhoid fever, the reviewer finds the statement 'H antigens mostly produced by passive inoculation: O antigens (somatic) result of active infection with living organisms' difficult to understand. The term 'antigens' is obviously in error for 'antibodies' and, in addition, in the reviewer's opinion the statement is fallacious.

Notwithstanding these small errors of omission and commission, the book is recommended.

CORRESPONDENCE

FIFTH INTERNATIONAL CONGRESS OF OTO-RHINO-LARYNGO-BRONCHO-ESOPHAGOLOGY: AMSTERDAM 8-15 JUNE 1953

To the Editor: I have had several letters from Dr. Struben, Secretary-General to the above Congress asked me to ascertain whether any South African medical men would like to attend this Congress. I would be very glad to hear from any colleagues on this matter and if a sufficient number, if possible accompanied by their wives, indicate their intention to attend, arrangements may be made to secure a substantial reduction on the fare for the flight to Amsterdam.

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no reminder. In addition to this the proximity of the Scandinavian Clinics, notably Copenhagen and Stockholm, should prove a further attraction.

O. Popper, F.R.C.S.

Lister Building,
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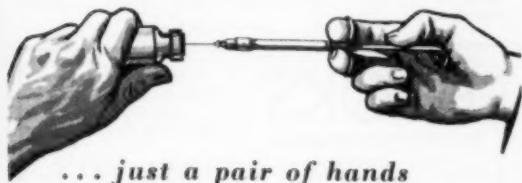
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PRAKTYKE TE KOOP : PRACTICES FOR SALE

(1060) Noord-Kaapland. Praktijk sonder opposisie. D.S. aanstelling. Bruto kontant-ontvangste £2,456. Huis te huur, £3 10s. p.m. Premie van £1,200 sluit in geneesmiddels, spreekkamermeubels, instrumente, ens.

(1094) Eastern Province hospital town. Practice with scope for surgery. Average annual receipts, £3,000. Premium of £2,500 includes drugs and very complete surgery furniture. Large house in good residential area for sale at £4,000. This is a better-class general practice with a strong obstetrical and gynaecological bias.

PRAKTYK OF VENNOOTSAP VERLANG

(1088) Goedgevestigde praktijk of vennootskap in gebied Paarl, Stellenbosch, Malmesbury, Caledon, Worcester, Montagu, Swellendam, deur ervare geneesheer, 46 jaar oud. Bereid om as assistent vir proeftydperk te dien.

ASSISTENTE/PLAASVERVANGERS VERLANG ASSISTANTS/LOCUMS REQUIRED

(1067) Small Transkeian village. Assistantship with definite view to partnership. Single man would be preferred. Initial salary offered £60 p.m. all found.

(1083) (b) Transkei. As soon as possible a locum for 3 months or a full-time assistant. Good salary offered for experienced locum.

(1124) South West Africa. Locum required immediately for 8 to 10 months.

(1119) South West Africa. For partnership practice. From 1 January or as soon thereafter as possible, for 3 months. Car

will be provided. £2 12s. 6d. per day plus board and lodging and travelling allowance.

CONSULTING ROOMS WANTED

(1082) Specialist requires consulting room. Wishes to share waiting room and services receptionist.

FOR SALE

(1071) High-frequency diathermy set (Lepel). £40.

(1079) Human serum albumen imported from U.S.A., fully potent for further 18 months, held in refrigeration at Cape Town. Indicated for use in any condition in which the blood protein is reduced.

Below-oedema levels can be restored to normal within 12 hours.

(1108) MICROSCOPE (Reichert, Vienna) in excellent condition. 4 Objectives—1 Oil Immersion. 4 Eyepieces. Inclined binocular vision and a straight monocular tube.

DURBAN

112 Medical Centre, Field Street. Telefoon 24049

PRACTICES FOR SALE : PRAKTYKE TE KOOP

(PD10) General practice, Natal inland city. European and non-European patients. Scope for midwifery and surgery. Premium required £1,250, cash preferred, but terms will be considered. For immediate sale.

(PD13) Natal Lower South Coast practice, near Pondoland border, suitable for retired doctor. Area developing and large Police holiday camp in vicinity. Excellent climate and very good fishing. Premium required £400, includes good stock of drugs and dressings, instruments and dispensary furniture. House for sale £1,800, including stand of one-third morgen. Bond available. For immediate sale. Owner having taken a full-time appointment.

LOCUM REQUIRED

Natal Midlands village. Month of November, £2 12s. 6d. per day, free board and lodging. Petrol and oil supplied. Single man preferred, but not essential. Mixed country general practice. No midwifery or major surgery. Hardly any night work. Dispensing of stock mixtures only. Native interpreter employed.

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Transvaalse Provinsiale Administrasie

VAKATURES BY PUBLIEKE HOSPITALE

Aansoek word ingewag van kandidate met geskikte kwalifikasies vir die onderstaande poste by Publieke Hospitale in die Transvaal. Aansoek moet gerig word aan die Geneeskundige Superintendent of Verantwoordelike Geneesheer van die betrokke Hospitaal en moet volle besonderhede bevat aangaande die ouderdom, professionele, akademiese en taalkwalifikasies, ondervinding en huwelikstaats van die applikant en moet voorts 'n aanduiding bevat van die vroegste datum waarop diens aanvaar kan word:—

Hospitaal	Vakatures	Emolumente	Opmerkings
Piet Retief:	Verantwoordelike Geneesheer (1)	£1,000 x 50-1,200 p.j.	Geregistreerde mediese praktisyen. Administratiewe pligte. Plus £180 p.j. huis toelaes. Getroud plus (a), ongetroud plus (b) hieronder.
	Deeltydse Algemene Praktisyen (1)	£340 p.j.	Geregistreerde mediese praktisyen 2 sessies per week.
Pretoria:	Deeltydse Narkotiseur (1)	£205 p.j.	Geregistreerde mediese praktisyen. 1 sessie per week.
	Kliniese Assistentie (Departement Interne Geneeskunde) (2)	£620-780-820-860	Geregistreerde mediese praktisyen. Applikante moet bereid wees om op 1 Januarie 1953 diens te aanvaar. Getroud plus (a), ongetroud plus (b) hieronder.
	Senior Geneesheer (Departement Interne Geneeskunde) (1)	£2,000 p.j.	Geregistreerde mediese praktisyen. Getroud plus (a), ongetroud plus (b) hieronder.
	Junior Geneesheer (Departement Interne Geneeskunde) (1)	£1,200 x 50-1,500 p.j.	Geregistreerde mediese praktisyen. Getroud plus (a), ongetroud plus (b) hieronder.
Vereeniging:	Ongevalle Beampte (1)	£600 p.j.	Geregistreerde mediese praktisyen. Getroud plus (a), ongetroud plus (b) hieronder.
(a) £320 per jaar lewenskostetoelae. (b) £100 per jaar lewenskostetoelae.			

Van persone wat aangestel word, sal verwag word om bevestigende sertifikate in te dien, asook om hulle onderwerp aan 'n geneeskundige ondersoek by die betrokke hospitaal.

Aansoekvorms is verkrygbaar van enige Transvaalse Publieke Hospitaal of die Provinsiale Sekretaris, Afdeling Hospitaaldienste, Posbus 2060, Pretoria.

Benewens jaarlikse salaris ontvang voltydse werknemers op die oomblik lewenskostetoelae, spoorwegkonseksie en word verlos toegestaan ooreenkomstig die hospitaal verlosregulasies. Die sluitingsdatum van aansoek vir die poste is 22 September 1952. 36791

Situations Wanted

Experienced doctor's or dentist's receptionist. Cape Town or Southern Suburbs. Write Advertiser, 1 Bickley Flats, Main Road, Kenilworth, C.P.

Natal Provincial Administration

VACANCY: SENIOR MEDICAL OFFICER: ADDINGTON HOSPITAL

Applications are invited from registered medical practitioners for appointment to a vacant post in the Department of Medicine.

Appointment is on 12 months' contract and the salary attaching to the post is as follows:—

Two years' service after qualification: £400 p.a. plus privileges.

Three years' service after qualification: £600 p.a. plus free quarters, or an allowance in lieu thereof.

Four years' service after qualification: £700 p.a. plus free quarters, or an allowance in lieu thereof.

Five or more years' service after qualification: £800 p.a. plus free quarters or an allowance in lieu thereof.

In addition to the foregoing salary, a temporary cost-of-living allowance is also payable.

Applications giving full details of experience and qualifications, should reach the Director of Provincial Medical and Health Services, P.O. Box 20, Pietermaritzburg by 30 September 1952. AD7151

Transvaal Clothing Industry Medical Aid Society

PART-TIME MEDICAL OFFICER

Applications are invited from registered medical practitioners for the appointment of part-time medical officer for the area of Pretoria Municipality and adjoining non-European areas including Lady Selborne and Claremont.

Medical officers will be expected to provide home visiting services and Saturday morning consultation services for members (mainly non-European) of the above Society, resident in Pretoria.

Further information may be obtained on application to the undersigned. Closing date for applications 8 October 1952.

P.O. Box 3079
Johannesburg
Telephone 23-8321

Helen Joseph
Secretary.

City of Port Elizabeth

VACANCIES: MEDICAL PRACTITIONER (INTERNSHIP) ELIZABETH DONKIN HOSPITAL FOR INFECTIOUS DISEASES

Applications are invited from male or female medical practitioners for the above-mentioned posts at a salary of £240 per annum plus cost of living allowance and free board and lodging.

Applicants must apply immediately to the undersigned and duties to commence on or about 1 October 1952.

Municipal Notice No. 265, 29 August 1952 (GL 70).

G. H. Brewer
Town Clerk.

Locum Benodig

Om een vennoot af te los vanaf begin Oktober vir 3 maande. £2 10s. per dag, vry losies plus reistoelae. Moet motor besit. Skryf aan 'A. M. Z.', Posbus 643, Kaapstad.

Provincial Administration of the Cape of Good Hope: University of Cape Town

JOINT MEDICAL STAFF FOR GROOTE SCHUUR AND OTHER TEACHING HOSPITALS: VACANCIES

1. Applications are invited from registered medical practitioners (registered specialists) for appointment to the following post:—

Department of Dermatology. Part-time Medical Practitioner, Grade D (Third Assistant), two sessions (salary, £110 per annum per session).

2. The conditions of service are prescribed in terms of the Hospital Board Service Ordinance No. 19 of 1941, as amended, and the regulations framed thereunder.

3. The Joint Medical Staff will be required to serve jointly the Provincial Administration of the Cape of Good Hope and the University of Cape Town.

4. A session shall be 4 hours per week not necessarily continuous of clinical and/or teaching work.

5. Application must be made on the prescribed form (Staff 23) which is obtainable from the Director of Hospital Services, P.O. Box 2060, Provincial Building, Wale Street, Cape Town, or from the Medical Superintendent of any Provincial Hospital or Secretary of any School Board in the Cape Province.

6. The completed application forms must be addressed to the Director of Hospital Services, P.O. Box 2060, Cape Town, and must reach him not later than 30 September 1952. Candidates must state the earliest date on which they can assume duty.

Y267838

Public Service Commission

VACANCIES IN THE PUBLIC SERVICE

1. The attention of medical practitioners, registered with the South African Medical and Dental Council, is drawn to an advertisement appearing in the *Government and Provincial Gazette* of this week, inviting applications for the under-mentioned posts:—

Post	Department/ Administration	Salary Scale £
Medical Inspector of Schools	Transvaal Provincial Administration (Education Department)	950 x 50—1,300
District Surgeon Grade III	Health (Louis Trichardt)	900 x 50—1,150

2. In addition to salary a cost-of-living allowance at the rate of £320 per annum (married) and £100 per annum (single) is payable at present.

3. It is emphasised that full and detailed particulars of qualifications and previous experience must be furnished but original certificates and testimonials should not be submitted. Application forms Z.83 and P.S.C. 8 (a) are obtainable from the Secretary, Public Service Commission, Pretoria, to whom filled in forms must be addressed.

4. The closing date for the receipt of applications is 4 October 1952.

36875

Benodig

Pligsetrouwe assistent in praktyk met twee vennote. Vooruitsigte van vennootskap. Moet Afrikaanssprekend wees en motor besit. £2 10s. per dag, vry losies plus vervoer-toelae. Moet so gou moontlik begin. Skryf aan 'A. M. Y.', Posbus 643, Kaapstad.

To Let: Consulting Rooms

Three interlocking rooms with water and 2 power plugs, in central Wynberg. Apply 'Meo Voto', Shipplake Road, off Lower Piers Road, Wynberg, C.P.

Provinsiale Administrasie van die Kaap die Goeie Hoop: Universiteit van Kaapstad

GESAMENTLIKE MEDIESE PERSONEEL VIR DIE GROOTE SCHUUR EN ANDER OPLEIDINGSHOSPITALE: VAKATURES

1. Aansoeke word ingewag van geregistreerde geneesherre (geregistreerde spesialiste) vir aanstelling tot die volgende pos:—

Departement van Dermatologie. Deeltydse Geneesher Graad D (Derde Assistent), twee sessies (salaris £110 per jaar per sessie).

2. Die diensvoorwaardes word voorgeskryf ingevolge die Ordonnansie op Hospitaalraadsdiens nr. 19 van 1941, soos gewysig, en die regulasies wat daarkragens opgestel is.

3. Van die Gesamentlike Mediese Personeel sal vereis word om die Provinsiale Administrasie van die Kaap die Goeie Hoop en die Universiteit van Kaapstad gesamentlik te dien.

4. 'n Sessie is 4 uur per week in verband met kliniese en/of opleidingswerk maar is nie noodwendig onafgebroke nie.

5. Aansoek moet gedoen word op die voorgeskrewe vorm (staf 23) wat verkrygbaar is by die Direkteur van Hospitaaldienste, Posbus 2060, Provinsiale Gebou, Waalstraat, Kaapstad, of by die Mediese Superintendent van enige provinsiale hospitaal of sekretaris van enige skoolraad in die Kaapprovinsie.

6. Die ingevulde aansoekvorms moet gerig word aan die Direkteur van Hospitaaldienste, Posbus 2060, Kaapstad, en moet hom uiters op 30 September 1952 bereik. Kandidate moet die vroegste datum meld waarop hulle diens kan aanvaar.

Y267838

Wanted

Assistant in partnership practice of four in a pleasant town with all hospital facilities. An opportunity to gain all-round experience is assured. Salary £70 per month plus transport allowance. Reply, giving full particulars and date when available, to 'A. N. A.', P.O. Box 643, Cape Town.

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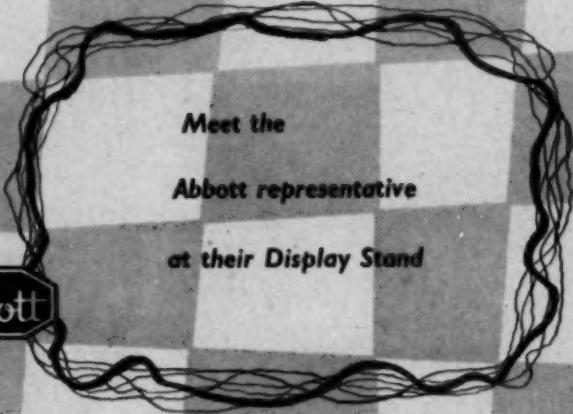
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